

MAGAZINE 2012 – 2013

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So easy to stir up a storm

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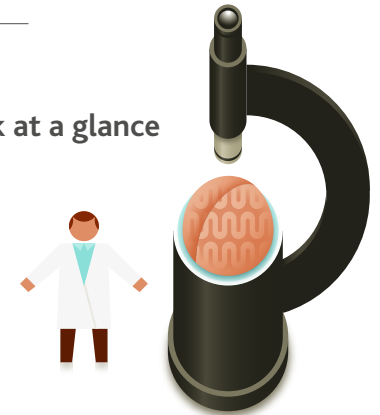
Rebecca Difilippo blamed herself relentlessly. She felt inadequate as a boss, wife and mother. She had no idea that she was suffering from severe depression.

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GREATER AWARENESS AND STRONGER EFFORTS ARE REQUIRED

At Lundbeck, we want to make a difference for people suffering from brain disorders. And there is still a great need for progress in the field.

According to the World Health Organization (WHO), 700 million people worldwide suffer from brain disorders. Despite therapeutic advances we are still far from having a thorough understanding of these diseases, and far from covering everyone's need for treatment.

Public awareness of brain disorders – as well as the resources used to combat them and alleviate their effects – are unfortunately still much too limited compared to the prevalence of these diseases and their consequences. A recently published report by the European Brain Council highlights the issues – and the societal impact associated with the incidence of brain disorders in Europe. The report concludes that brain disorders are a ticking bomb under the European economy and European society as a whole. And although the report covers Europe only, its data can in all probability be extrapolated to most high-income countries.

The treatment and prevention of brain disorders would therefore seem to be natural targets for increased focus. Not only is the burden of these diseases great. The illnesses are also associated with high costs to society, there are large numbers of untreated patients, and effective treatments are still in short supply.

THERE ARE A VARIETY OF CHALLENGES

At Lundbeck, we want to make a difference to people suffering from brain disorders. We are working intensively to develop new and better treatments,

and we want to draw attention to brain disorders through increased public awareness – including that of politicians, authorities, the media and the general public.

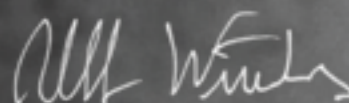
The articles in this magazine show how brain disorders are treated in several countries around the world. They describe progress, not least; but they also reveal challenges and setbacks. We take a closer look at three countries: Greece, China and France. In Greece, we see how the country's precarious economic conditions also affect psychiatry; in China, we note that the treatment of mental disorders is making rapid advances despite many taboos; and in France we learn about the challenges of increasing the use of focused therapies nationwide. Together, these three portraits indicate how very different conditions are internationally.

THE PATIENT IN FOCUS

Patients with brain disorders are the focus of Lundbeck's work. Knowledge about patients' needs is what drives us. When patients tell their stories about living with brain disorders, this provides us all with a better understanding of the diseases. We are therefore pleased and grateful that three people who suffer from, respectively, bipolar disorder, Parkinson's disease and depression have been willing to share their stories with us and with you in this magazine. Jakob from Denmark, Jean-Claude from France and Rebecca from Canada tell their stories about how difficult it is to be diagnosed with a serious disease, but they also relate how they have learned to live with it.

Every time we hear stories like these, we become a little wiser and we understand a little more. This is knowledge that we at Lundbeck take with us when we go back to our laboratories and develop tomorrow's medicines. This knowledge can also contribute to the public's awareness of the area, and help to bring about the increased efforts that are so necessary.

I hope that you will enjoy reading this Lundbeck Magazine, and that the articles will provide you with some insight into what drives Lundbeck management and staff.



Ulf Wiinberg
President and CEO



THE BURDEN OF BRAIN DISORDERS

Just as the brain is a highly complex organ, analyzing the impact of brain disorders – medically, socially and economically – is by no means a simple task.

A new report from the European Brain Council cuts through the complexity to clarify the societal costs of brain disorders.¹



164.8

million persons in
Europe are suffering from
a brain disorder

1) Lundbeck has given an unrestricted grant to the preparation of the report, but has had no further role in the study design, collection of data, analysis, interpretation or the preparation of the manuscript.



BENGT GÖRAN JÖNSSON

PROFESSOR, PH.D., M.A., B.A.

SELECTED POSITIONS

- Professor, Stockholm School of Economics, Sweden
- Founding Director, Center for Medical Technology Assessment, Linköping University, Sweden
- Professor, Department of Health and Society, Linköping University, Sweden
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- Lecturer, Department of Economics, Lund University, Sweden

The societal burden of brain disorders is immense, and should be considered one of the 21st century's top global health challenges. This is one of the main conclusions of a new report on

the extent and costs of mental and neurological diseases. The report is based on a study that was coordinated by the European Brain Council (EBC) and the European College of Neuropsychopharmacology (ECNP) and is an update of an earlier report from 2005.

The 2011 report is the latest to provide consolidated data on the current scope and costs of brain disorders across Europe², and the numbers are staggering. It is estimated that the direct and indirect 2010 costs of brain disorders in Europe totalled EUR 798 billion, and that more than a third of the population, corresponding to 164.8 million people, were affected. Out of the total 2010 direct health care expenditures in Europe, EUR 1,260 billion, the direct costs of brain disorders represented a full 24 per cent.

But brain disorders are not only a European challenge. US data point to a situation just as serious as Europe's, and the World Economic Forum concluded in a separate 2011 report that the developing world will be increasingly burdened by disorders of the brain as their economies continue to grow and their populations continue to age. A case in point is China, where mental disorders have recently overtaken heart disease and cancer as the single largest strain on the Chinese health care budget.

Bengt Jönsson, professor of Health Economics at the Stockholm School of Economics, co-authored the report and also sat on the EBC steering committee responsible for the analysis. He admits to being surprised by the scope of the problem and how much work still lies ahead before a comprehensive understanding of the real costs of brain disorders to society has been gained. Nonetheless, he stresses that the estimates in the report are very conservative and that the actual costs are probably even higher.

"Despite the facts that we have improved data and that we have included new diseases compared to the last report in 2005, my main reflection is that we still have a lot of work ahead of us before we have the full picture of the scope, costs and burden of brain disorders," he says.

NUMBERS MAKE IT TANGIBLE

Bengt Jönsson explains that one of the key objectives of the EBC report is to express the burden of brain disorders in economic terms so that politicians, authorities and the man on the street can grasp the extent of the costs in tangible terms. The numbers cut through the complexity and make the intangible tangible.

"A prerequisite for a constructive discussion about a disease and the burden it places on society is a common understanding of the scope and size of the problem. This has been missing – and is to some extent still missing – in the area of brain disorders.

The epidemiological data available simply have not been of a standard that has allowed us to see the whole picture. This means that the concept of brain disorders and talking about them as an entity is still a new one."

"By considering the costs of all resources used or lost due to the diseases," Bengt Jönsson explains, "irrespective of who the payer is, we are hoping to see the problem as a whole and get a sense of its magnitude. Otherwise we cannot start coming up with solutions and answers," says Bengt Jönsson.

And it is clear that solutions and answers are urgently required. In addition to their massive economic consequences, brain disorders also place heavy personal burdens on patients. The distress associated with coming to terms with a diagnosis, not being able to carry out one's usual activities, and struggling with for instance darkness and sadness, all contribute significantly to the burden of brain disorders.

HUGE INDIRECT COSTS

Of all costs associated with brain disorders, 40 per cent are indirect costs and are attributed to lost production due to work absence or early retirement. Simply put, these indirect costs are a measurement of wasted human potential and resources. In

² The study was conducted for all countries in the European Union (EU27) and Iceland, Norway and Switzerland.

comparison, only 30 per cent of total costs are direct health care costs; among other things, these comprise physicians' visits, hospitalizations and pharmaceuticals. The remaining 30 per cent are direct non-medical costs, including social services, special accommodations and informal care.

According to Bengt Jönsson, the analysis places the actual costs of brain disorders in a wider context. "A very small part of the burden of brain disorders is actually on the health care system," he says. "That forces us to apply a broader perspective; we need to look not only at what we are spending, but also at the resources we are losing." He points to the importance of spending money wisely. "Well-conceived programmes that increase spending on prevention and improved treatment can reduce total costs. Conversely, poorly designed cost containment policies can increase total costs."

The inability to lead productive lives, which many patients face as a result of their diagnoses, is not the only loss of resources caused by brain disorders. The time and resources that family members have to spend in order to compensate for and help with the consequences of brain disorders must also be considered.

"The fact is that family and relatives carry a major burden in managing these diseases," Bengt Jönsson asserts. "Alzheimer's disease and other types of dementia are obvious examples. Patients with

these diseases have limited contact with the health care system, but are to a large extent taken care of by families, friends or even members of the local community. We need to acknowledge this unequal distribution of the burden. We must recognize that if family and relatives did not carry this huge part of the load, and instead left it for the rest of society to handle, there would be an enormous increase in public expenditures on these diseases. An increase we simply would not be able to afford."

BE SMARTER AND WORK SMARTER

According to Bengt Jönsson, the EBC report will ideally serve as both a wakeup call, making clear the current burden of brain disorders in Europe, and also as a reminder of the challenges ahead. "Given Europe's current financial and demographic conditions, we cannot expect an increase in the resources available to deal with brain disorders. So we have to be smarter and work smarter with the resources available to us today," says Bengt Jönsson.

"As an economist," he continues, "I have been working with a number of diseases and their economic impact throughout my career. And what really strikes me about brain disorders is how little we still know about the brain and the appalling lack of effective treatments. So, we are of course in great need of new and better treatments. This is the real prerequisite for progress and impact in the area of brain disorders."

AN OPTIMISTIC PESSIMIST

Bengt Jönsson is both optimistic and pessimistic about the possibilities of progress. "I think we have every opportunity to make changes for the better, and that we are to some extent on the right track. I believe it is realistic to expect improvements in a



number of disease areas in the coming years.” He points to depression in particular as an area in which improvements can be made: “We can be better at diagnosing and treating patients with depression, and hence reduce the costs associated with the disease.

Depression is a very common disease, and many patients are treated in primary care by local General Practitioners. But knowledge of the disease and its treatments varies enormously across Europe. If we can establish best practices in most places, this would be a fantastic achievement that would improve the lives of millions of patients suffering from depression. And this is not a cost issue; it is a matter of building competencies and being well organized.”

“Europe is not the only place where there is room for improvement,” he points out. “Depression is also an area where it is possible to develop cost-effective treatment alternatives in countries with middle and low incomes.”

While Bengt Jönsson remains optimistic concerning progress in specific disease areas, pessimism still rules his views of the overall development of brain disorder costs in the coming years. He believes

an increase in the costs of brain disorders is the most realistic scenario when the next EBC report is published in 2016.

“First, because we will witness increased incidence and prevalence. With ageing populations, we will simply have more people being affected by disorders of the brain. Second, the progress made in the treatment of brain disorders is rather limited. We might be moving in the right direction, but we are moving slowly.” As a third reason, Bengt Jönsson points to the growth of “new” brain disorders related to social behaviour such as bulimia, anorexia, ADHD and hyperactivity in young children. “We still do not understand these diseases or what explains the increase in the number of persons diagnosed. But realistically, these diseases will add to the burden.”

PROGRESS IS POSSIBLE

Armed with more than 30 years of experience in the field of health economics, the Swedish professor is nonetheless convinced that progress is always possible.

“When I started my career in the 1970s in Sweden, one of the major reasons for people failing to show up for work was ulcers. But with the development of new medicines, we were able to treat and cure this disease, and ulcers no longer keep people

from living a normal life. Later on in the 1980s and 1990s it was back pain and back trouble that kept people at home. We did not find a cure for back pain, but we did become much more knowledgeable about this area and discovered measures that could improve the quality of life for these patients – including how to get them back to work. The prevention and treatment of cardiovascular diseases is another area in which medical progress has reduced productivity costs in recent decades. What we see now is that the major reason why people have to give up working is mental diagnoses – anxiety, depression, etc.,” says Bengt Jönsson.

“We have begun taking the initial steps of understanding how to deal with this challenge. And I believe we will be successful. Our knowledge and understanding of the brain are expanding all the time, and in both human and economic terms we simply cannot afford not to improve. I believe we will. We are on the right track.” ●

Sources:

- Gustavsson et al. – Cost of disorders of the brain in Europe 2010. European Neuropsychopharmacology, 2011.
- World Economic Forum and the Harvard School of Public Health – The Global Economic Burden of Non-communicable Diseases, 2011.



SO EASY TO STIR UP A STORM

Check out Jakob Tranberg in his snakeskin boots, crystal-studded T-shirt and white fur coat with the Versace logo splashed across the back.

He's at the top of his game as a celebrated graphic designer in the advertising world. Ideas and award-winning record covers churn out, and in his mania, he is soaring higher and higher.



JAKOB TRANBERG

- Jakob is a graphic designer.
- He designed more than 300 album covers between 1994 and 2004 for Danish artists such as D-A-D, Aqua, Safri Duo and the Raveonettes.
- Jakob was diagnosed with bipolar disorder in 2003, the same year he went bankrupt.
- Since his first major manic episode on Gran Canaria in 2011, he has had four manic episodes and three depressions. His last hospitalization for mania was in 2011.
- The disease makes it difficult for him to plan, remember and concentrate.
- Jakob has received disability pension since 2010.



Even as a boy Jakob Tranberg could never get enough. At the age of eleven he begged his parents to let him hike in Lapland, 125 km through glaciers and snow, with a group of adult scouts. He embraced the hardships and intense camaraderie with such passion that finishing the trip was almost more than he could bear. "I gave everything I had, and was completely exhausted. And then it was back to humdrum reality. I didn't want my parents to talk to me. I just lay in the bathtub with my eyes closed."

Jakob grew up in a Danish provincial suburb. He was one of those kids who like to draw, and his drawings earned him praise. His skills continued to improve because he could concentrate for hours on end.

Just graduated as a commercial and graphic artist, 23 years old, Jakob longs to get away. The Promised Land is Copenhagen: that's the place D-A-D and his other favourite rock bands call home, and that is where he dreams of designing album covers for them. By a stroke of luck he lands a job at a Copenhagen advertising agency with clients in the music business. The agency has plenty of work. So much, in fact, that he ends up sleeping there on a mattress on the floor.

Fast forward. Just one year later, Jakob is on stage at the Danish Grammy music awards (since 2001 "Danish Music Awards"), gazing out at the

audience with six statuettes in his arms. Members of D-A-D stand next to him: they've just raked in a load of Danish Grammys for best band, best video – and best cover. Jakob's cover art. Applause, celebration, parties. "This is where I belong. This is my stage," Jakob thinks. It can't get much better than this.

But it does. Shortly after, EMI, a leading record company, gives him a call and asks him to do cover art for them. They offer more money than he thought possible. Jakob pours himself into the work. He also begins to make cannabis a habit at the agency, where he and a few other creatives like to gather in a meeting room, smoke a joint, and then draw together in companionable silence. They come up with at least a handful of visual ideas before they go home and sleep on them. The next morning there are always a few ideas that work.

Four years after moving to the city, Jakob is creative director at his own agency, PowerPlant, whose clients include the record companies Sony, EMI and Universal.

I AM THE CHOSEN ONE

PowerPlant is an agency, but it is also a person: Jakob. He whirls clients and friends up into a kaleidoscopic barrage of ideas. They enjoy the flight, and

they ask for more. Jakob tells of his ability to sense where other people are at – and to vibrate in harmony with them. It is an ability that can turn him into anybody's best friend. "I would walk into a music store, for example, and fall in love with a Jimi Hendrix luxury box set in purple velvet. The owner and I strike up a conversation, and fifteen minutes later he's asking me if I'd like to have his store. It was like that all the time – people wanted to give me something."

Assignments keep pouring in. Jakob's workday begins at 11 a.m. and stretches until 1 a.m. the next morning. When you work so much, you also deserve to party, he reasons. And Jakob can always start a party with his disco ball, smoke machine and colourful group of friends. Other people are like batteries that supply energy. "I attract high-energy types like myself, and talking to them gives me a charge. I can always talk faster than any of them."

Later, Jakob is puzzled that nobody stopped to wonder what was going on. Maybe he overheard their warnings? Perhaps they said nothing because he was always overflowing with energy? "Because I *did* feel fantastic. I'm the chosen one! But I'm not the only one – anybody else can also be chosen, because they are *also* fantastic!" Jakob bathes everyone around him with positive energy, and he gets his way. As he tells the story of this period in his life, he suddenly demonstrates how it was. He claps his



hands loudly as his voice booms out, "It's going to be like *this*!" Then, he adds gently, "And my words made their mark."

But there is an undercurrent, and it is pulling in the opposite direction. Jakob always says yes to clients. His girlfriend must wait, and this has its costs. "We're lying in bed and I say, that I'd like to have a child with her. She'd like to have a baby, too, but she's afraid to. She's afraid that I'll leave her to deal with the baby on her own. And I don't know what to tell her, because I can't say that I'm going to change everything." The only way to get out of the situation is to accelerate.

A VISION

Jakob moves into his office in 2001. "That's probably the time when things began to fall apart," he says, "because I'm starting to stay awake for several days at a time, working." He remembers being frustrated by the music industry's failure to grasp the potential of the Internet. Everything was still done on paper, he recalls, and if musicians wanted a website, they had to pay for it themselves. One night he is scribbling down ideas, faster and faster, and suddenly he explodes inside. "There is this FLASH and I have a vision. Everything that we are doing is totally passé.

”

**MY MANIA KEEPS SOARING
BECAUSE I CAN'T TALK TO
ANYONE. I FEEL QUITE LOST,
AND YET EVERYTHING IS
SO BEAUTIFUL.**

And I know what we need to do. We have to reform the entire music industry – no, the entire entertainment industry – and I see how things will be in six or seven years, I see it so clearly." The veil between the inner and outer worlds is torn apart. A gale is raging inside Jakob's head; outside, a thunderstorm has begun, and Jakob runs out to stand in the pouring rain.

Jakob hires six new employees to realize his vision. But the undercurrent is still there, and getting stronger. Clients are growing sceptical. As soon as he leaves a creative meeting, he cannot remember a word of what was said. The agency's books are a mess, and their landlord wants to throw them out. And his new staff refuse to work at Jakob's pace, threatening to call in their union. It's not fun anymore. Now he just wants peace.

So he leaves his phones lined up on his desk, all five of them. He wants his staff to be able to figure out that the boss has left. But where does he go? To Gran Canaria with a few bags of dirty laundry. He has no idea that he is deeply into a manic episode. But his mania takes a new turn on the Spanish island: "My mania keeps soaring because I can't talk to anyone. I feel quite lost, and yet everything is so beautiful." At an AIDS memorial event that he attends, the sight of the many candles moves him. He looks out over the sea of light from above, but something disturbs him. "I could see that some of the candles





I WAS MR. ROCK'N ROLL WHEN I LIVED IN COPENHAGEN, AND CONTINUED TO BE SO FOR A LONG TIME IN MY OWN MIND.

weren't lined up properly, so I ran down to fix them," he recalls.

He has to go home when his money runs out. Some time later, his father asks him how he is doing. Not very well, Jakob tells him. Should his father come and get him? Yes. And then Jakob falls silent.

DOWNWARD SPIRAL

He moves into his parents' basement and tries to get his life together. And to some extent, he succeeds. Another wave of wild, extravagant experiences storms through his life, sparking a new manic episode. Jakob describes these years as a long, downward spiral. Eventually, his parents go so far as to try and get him committed to a psychiatric hospital.

Here, he fluctuates between fits of rage and interludes where he charms the staff. Friends visit, bringing him cannabis. But when he is finally ready to leave the hospital, his past is waiting for him on the outside – and eager to catch up. "So many things had gone up in flames," he recalls, "and I owed a lot of money – especially to a friend. And then I hit the bottom."

One night, Jakob discovers that he is trying to figure out the most rational way to commit suicide; this time, he catches himself and is voluntarily admitted to the hospital for depression. When a manic patient on his new ward introduces himself as the sun god Ra, Jakob does not have the strength to reply. Patients sit in their robes, chain smoking. Everything has a greyish tinge. But Jakob discovers that he can please the other patients by drawing for them – monograms based on their names, or whatever else they might like. One day, he tentatively begins a drawing for himself. Pencil barely touches paper. Jakob, who normally oversteps whatever constraints he meets, now makes a rule: "I told myself I could not use an eraser. So I had to consider the consequences of every line I drew. No

corrections! There was a lot of meditation in it. And I think it was a kind of parallel to my life." He called the drawing *The Animals' Party*, but the animals did not look happy.

SANTA'S WORKSHOP

The walls in Jakob's flat are covered with paintings, drawings, clippings, mirrors, and pieces of fabric. He calls it "Santa's workshop." He is now 41 years old and has lived with the diagnosis of bipolar disorder since 2003, the same year he went bankrupt.

The realization that he will never return to his old life has come slowly. "I was Mr. Rock'n Roll when I lived in Copenhagen, and continued to be so for a long time in my own mind." For an extended period he believed he was sad, not sick. Accepting his illness with the help of the Mood Disorders Clinic is a process that has taken years.

Mr. Rock'n Roll's vast circle of friends has dwindled. He has become very selective about whom he sees in recent years; at times he isolates himself. His creativity has not left him, but he cannot concentrate as he did before. He overcomes this barrier with hours of quiet before he starts drawing. If he is interrupted he loses his focus, and must start over. The phone is on silent mode much of the time.

Jakob paints and illustrates for his own pleasure, and signs his work with the name 'InCoqnito'. He occasionally agrees to take on a job, but only small ones with no deadline. Otherwise, the energy starts to pulsate much too strongly. "It's so easy for me to stir up a storm. And put myself into the eye of the storm, and watch it go through the strangest spins." On the other hand, staying too far away from the storm is also dangerous. "I run the risk of things getting too grey," says Jakob. "Then I can't convince myself why on earth I should muster the energy to do anything at all. That's how it is for everyone: we swing between the two poles in our struggle against

indifference. But I craved creativity in everything I did." And pure creativity is almost like anarchy, he says. "I used to have to do everything creatively – even unlocking my bicycle. Maybe it's my curse? That I so wanted things to be new and fresh every day." ●

FACTS ABOUT BIPOLAR DISORDER

- Bipolar disorder, also known as manic-depressive illness, is a disease that appears in episodes of mania/hypomania and depression.
- Bipolar disorder affects more than 30 million people worldwide, and is equally common in men and women.
- It takes an average of 8-10 years from the first appearance of symptoms until diagnosis is made.
- Genetic factors play a major role in bipolar disorder.
- Bipolar disorder is often associated with impaired psychosocial functioning, including reduced ability to work.
- Many patients require prolonged treatment, which should be tailored to individual patients and continuously adapted to the different phases of the disease.
- Medication plays a crucial role in both the prevention of the disease and in its treatment in the acute phase.
- Psychoeducation and psychotherapy, in combination with medication, reduce the risk of relapse better than medication alone.

A SENSE OF VICARIOUS HOPE

Bipolar disorder can cause patients' moods to soar, so they feel better than they ever have before. At other times they might feel that life is barely worth living. Clinical psychologist Krista Straarup helps her patients to stabilize their illness as well as possible.

When new patients arrive at the Mood Disorders Clinic at Aarhus University Hospital, Denmark, they are often bursting with questions. Will I ever be myself again? Can I take care of my job? What about my children? They have usually just been diagnosed and discharged from a psychiatric hospital. Their families also have many questions, and might wonder if they had failed to notice something, or how best to help their relative and prevent the illness from returning. At the clinic new patients are met by a multidisciplinary team of psychiatrists, nurses and psychologists; one of the team members is clinical psychologist Krista Straarup.

She explains to patients that it may take them time to stabilize, and that the disease may reappear. Once bipolar disorder has manifested itself patients will be vulnerable to new manic or depressive episodes for the rest of their lives. The goal of treatment at the clinic is to allow patients to function as well as possible and to be free of symptoms. Treatment consists of a combination of psycho-education, psychotherapy and medication: studies have shown that combined treatment can prevent new episodes significantly better than medication alone, also in the long term.

Krista Straarup wants to help patients to reduce their feelings of powerlessness and to discover that they can influence the course of the disease. "Psychoeducation provides insight into the disease and its consequences," she explains, "and patients learn to manage incidents and prevent their return." The training teaches patients to strengthen protective factors and reduce risk factors. They become familiar with their own, individual early warning signs, and learn to respond to these so they can better protect themselves in the future.

In order to recognize one's early warning signs, one must know one's basic temperament, also called the 'baseline personality'. But when are you yourself, and when is it that the disease takes over? For any one individual, healthy baseline personalities as well as bipolar disorder symptoms express themselves in feelings, thoughts and behaviour. The road to increased awareness of how to distinguish between the two is long, and new patients are only taking their first steps.

MY PERFECT CHILD

Patients at the clinic must learn to understand their disease, which is complex. For example, bipolar disorder is not always experienced as suffering; it may also encompass states of mind that the patient enjoys, and does not want to give up. People with bipolar disorder often place high demands on themselves, and reach for the highest-hanging fruit without hesitation or a safety net to break their fall. Initially, manic symptoms may improve performance, explains Krista Straarup. "This is welcome when the ideas come," she says, "But later you become irritable, unfocused, less empathetic – and can't live up to the expectations you've created, or complete the projects that you have begun. It's an incredible high, but the rush can leave you unaware of the many bridges you are burning behind you, and burn you out." Her training leads patients to understand that both pleasurable and painful symptoms are elements of the same disease and cannot be separated.

An important therapeutic task is to help patients become aware of what they can actually cope with, and to set realistic goals accordingly. This lesson can also be a hard one to learn, as people

with bipolar disorder often receive positive feedback from their surroundings due to their great personal drive. "However, this drive has its downsides, too," warns Krista Straarup. "If patients don't adjust their ambitions, then this drive can continue to feed the disease."

A Swedish study has demonstrated that creative and intelligent children are at higher risk of developing bipolar disorder than other children. Indeed, Krista Straarup finds that the clinic's patients are often creative. As a mother at the clinic once said: "My perfect child has become ill." In itself, creativity can be a protective factor, Krista Straarup points out. But she must help patients to realize that they cannot always afford to stretch their abilities to the limit.

UNNECESSARY RESTRICTIONS

Slamming the door; crying; getting a good idea and bubbling over with enthusiasm: all are ways that healthy people express their emotions. For relatives of those with bipolar disorder, however, these can all be threatening signs that the disease is about to flare up. According to Krista Straarup, it can be difficult to distinguish between bipolar symptoms and normal behaviour. We can come to see the normal as pathological, and the pathological as normal. This is not the case with psychotic patients, where pathological behaviour is easier to determine. But the boundaries are blurred for patients with bipolar disorder, who may find that others put them under unnecessary restrictions and control. As one patient at the clinic exclaimed, "Are other people now going to decide when I should go to bed?"

"We have to teach patients and their families to find the balance between observing the warning



KRISTA STRAARUP

PSYCHOLOGIST, MSC

SELECTED POSITIONS

- Clinical psychologist at the Mood Disorders Clinic, Aarhus University Hospital, Denmark
- Guest lecturer in psychology, Aalborg University
- Author and co-author of several books and articles about bipolar disorder and its treatment

signs and not attributing everything to the disease,” says Krista Straarup. “An important psychoeducational task is therefore to agree on what constitutes a sign of disease.” Together, they try to identify the patient’s basic temperament by asking a number of questions. What is your normal activity level? How much do you usually talk? How much do you normally sleep? People with bipolar disorder may have baseline personalities that make them more outgoing than most, relatively talkative, not afraid to overstep boundaries, and able to get by on just five or six hours of sleep a night.

Psychoeducation also helps relatives in other ways. “Bipolar disorder brings the entire emotional register into play,” explains Krista Straarup, “and both depression and mania are contagious.” Family and friends may experience the same mood swings as the patient – feeling sadness, elation and anger – and wear themselves down as well as the patient. At the clinic, families of bipolar disorder patients can meet others who have had similar experiences, and learn to normalize their reactions.

WHO AM I?

A course at the Mood Disorders Clinic typically lasts three years. During this time many patients experience ambivalent feelings about their diagnosis, their medication and their prospects of living with the disease and its consequences. An important part of the staff’s work with patients is thus centred on adherence, or how well patient behaviour corresponds to the clinic’s recommendations.

Most people can accept medication for a limited period, but find it difficult to put up with a long-lasting, perhaps lifelong need for therapeutic drugs. If you feel fine, the medication seems un-

necessary. If you feel bad, you think the medicine does not help enough anyway, so why bother to take it? Krista Straarup mentions another way that this can go wrong: “Even if patients take their medication, there is no guarantee. Manic symptoms might crop up anyway, so patients may feel that they aren’t sick and have in fact never felt better – and drop their medication. Then the disease accelerates.”

When episodes occur, patients experience a pressure chamber of feelings and thoughts that over stimulate them or wear them down. They lose their grounding in this emotional space, and then must find it again. Pulling oneself up again – and sometimes, again and again – can be difficult, and the risk of suicide is high. The clinic’s staff try to keep a tight grip on patients. “When patients are in a phase of the disease where they lose faith and no longer see any reason to carry on, we have to provide them with a sense of vicarious hope,” says Krista Straarup.

But what can patients hope for if they must abandon their dreams? How can meaning and direction in a patient’s life be restored? Krista Straarup is interested in narratives, the life stories that we all tell and often have to undo and reconstruct many times over during our lives. It is exactly this reconstruction that can be difficult to cope with for patients with bipolar disorder. “The many ups and downs raise a basic question for the patient,” she explains. “Who am I? I am so many things! What patients do and think in one phase can be things they don’t understand at all in another.” Krista Straarup tries to help the patient arrive at a life story that can accommodate what has already occurred, and provide direction for what is yet to happen. This process, in itself, can help build a more coherent sense of self.

NEED FOR KNOWLEDGE

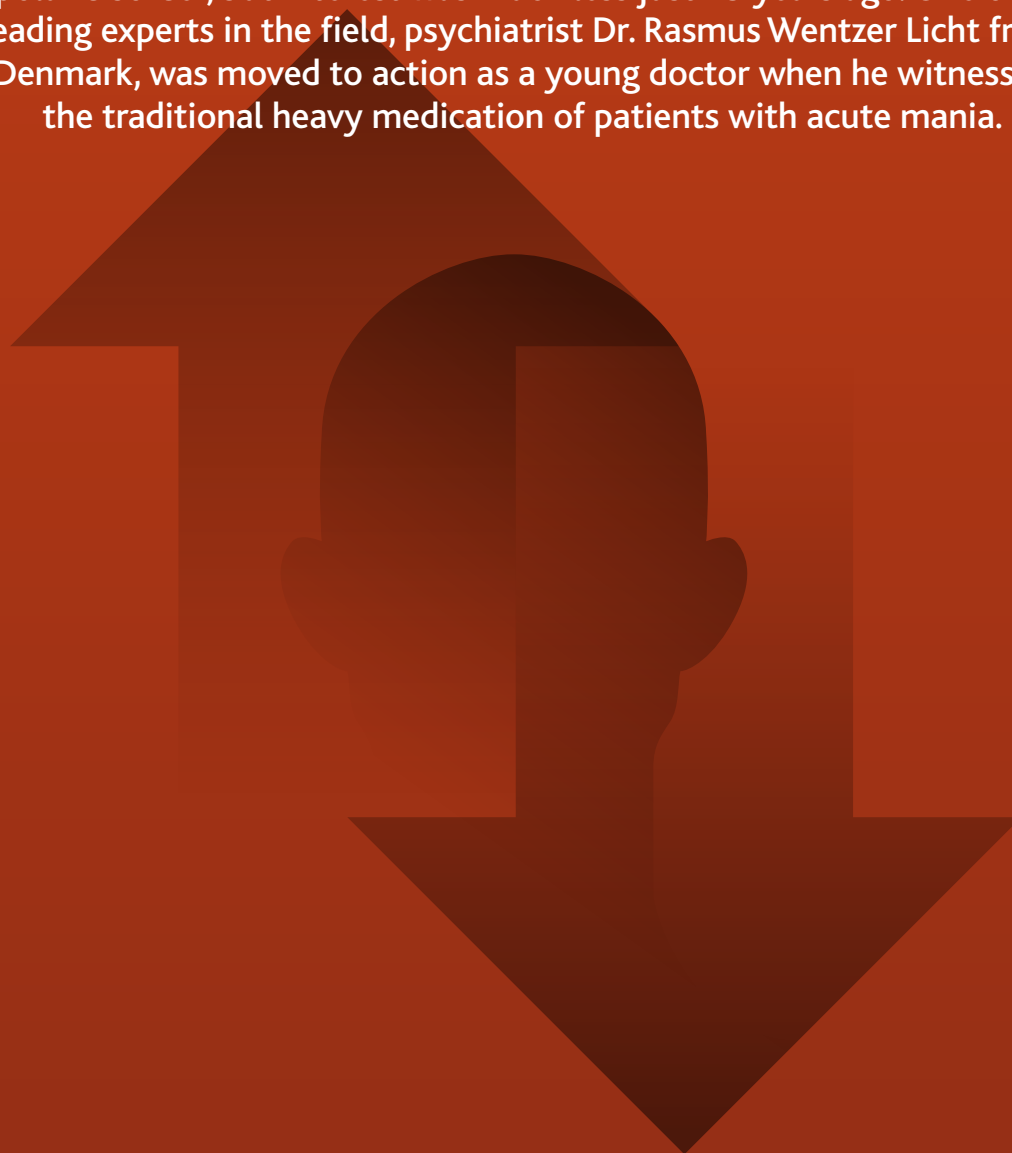
Manic or depressive episodes express themselves as more than extreme mood states. They also affect the patient’s cognitive functions, including memory, attention and the ability to plan and organize. In the past, treatment professionals believed that the time between episodes was neutral, and that patients could lead their lives approximately as they did before an episode. According to Krista Straarup, however, this view was overly optimistic. “During the last ten years we have become increasingly aware that patients may also have cognitive difficulties between episodes. Studies show that about half of all bipolar patients function at reduced cognitive levels. It has a great impact on their ability to cope in everyday life. And there are many indications that patients’ ability to function worsens as the number of episodes increases.”

The job market rewards hypomanic behaviour to some extent. But once the disease has broken out, patients need reduced stimulation and a stable environment. If cognitive functions are also affected, then it may be difficult to work under normal conditions or complete an education. The disease often results in loss of status and social identity, as well as bringing on financial concerns. Even though Denmark’s social security net is more finely meshed than in many other countries, Danish patients also experience social and economic insecurity.

That is why staff at the Mood Disorders Clinic cooperate with social services to create as safe an environment for patients as possible, and also teach social workers about bipolar disorder. In Krista Straarup’s view, both social institutions and employers need more knowledge about the disease and its impact on patients’ ability to carry out their jobs. ●

BIPOLAR DISORDER CALLS FOR HUMILITY

The global psychiatry community now devotes significant attention to bipolar disorder, but interest was much less just 25 years ago. One of the leading experts in the field, psychiatrist Dr. Rasmus Wentzer Licht from Denmark, was moved to action as a young doctor when he witnessed the traditional heavy medication of patients with acute mania.



When Rasmus Licht arrived at the psychiatric ward of Aarhus University Hospital as a young doctor in the mid-1980s, he was struck by what he saw: acute manic patients were almost exclusively treated with high doses of what would later come to be labelled old-fashioned antipsychotics, the only type of antipsychotics available at that time. The possible side effects of this treatment are parkinsonian symptoms in the short term and neurological damage, such as involuntary mouth and tongue movements, in the long term. The sight of patients suffering from such side effects was a provocation for Rasmus Licht. "Acute manic patients were being medicated heavily and with these antipsychotics," he recalls. "As a result, patients had high resistance to treatment."

Rasmus Licht was originally attracted to psychiatry because the field seldom relied on standard solutions for complex problems. During his first years at the hospital, however, he became alarmed at just how differently acute manic patients were treated. High doses as well as low doses were administered; some drugs were used commonly, others only rarely. Every ward in every hospital had its own local tradition. He then saw the unfortunate consequences of the field's lack of standard solutions: treatment was too erratic, and this could harm patients.

Frustrated over these conditions, Rasmus Licht and a colleague set up a study to test a gentler form of treatment of manic patients. The study was overly ambitious, Rasmus Licht comments, and its sample size was too small to provide valid conclusions. But the experience did have two important consequences. First, he became fascinated by the study's methodological problems, which would later become the focus of his research. Second, the older, experienced psychiatrists working at the hospital developed an interest in the young doctors' investigations of acute manic patients.

INSPIRATION FROM ABROAD

Capturing the attention of experienced psychiatrists was not easy. For as Rasmus Licht recalls, psychotherapy was the predominant treatment method throughout the 1980s. Only a few psychiatrists showed interest in psychopharmacology; one of them was psychiatrist Per Vestergaard under whom



Rasmus Licht worked, and who involved him when setting up a lithium clinic focusing on long-term treatment of bipolar disorder. But when it came to treatment of acute mania, Rasmus Licht knew of no other Danish psychiatrist who had specialized in this field. He believes the modest interest in the field can be attributed to the limited treatment options then available.

The situation did not change until the mid-1990s, when things started changing rapidly. New antipsychotics with fewer neurological side effects were introduced, and certain types of epilepsy medication also proved to be effective in treating acute mania. It was as if a door had opened, says Rasmus Licht. "Bipolar disorder became interesting and attracted international research funding, congresses and meetings in a self-reinforcing process."

It was at this juncture that Rasmus Licht, by then a chief psychiatrist, began to introduce the new treatments at his own department in Aarhus. He also decided to travel to leading foreign centres in order to visit experts there. One of his trips brought him to psychiatrist Charles Bowden at the Health Science Center at San Antonio, Texas, USA. It was Charles Bowden who, in an innovatively designed study, definitively documented the efficacy of a particular epilepsy medication in treating mania. Rasmus Licht also came into contact with the groundbreaking clinic, the Mood Disorders Centre in Ottawa, Canada, led by psychiatrist Paul Grof.

Beginning in 2001, Rasmus Licht led efforts to set up the first Danish specialty clinic dedicated to the treatment of bipolar disorder. It was not necessary to start from scratch, as he already had experience from the lithium clinic. But whereas it was the medicine that determined whether a patient could be treated at the old clinic, it was the diagnosis

that informed treatment at the new. Thus, it became possible to develop multifaceted treatment options specifically for bipolar disorder.

Rasmus Licht introduced several of the treatment principles that had inspired him on his travels abroad. For instance, the Canadian clinic insisted that patients see the same members of staff, no matter what stage their disease was in; the clinic also maintained contact with its outpatients over the course of several years. Furthermore, it was important to Rasmus Licht that patients have easy access to care practitioners. "Bipolar patients can be doing really well; but when they start to feel bad, the change can be very abrupt. As soon as patients feel that things are getting out of hand, they must have access to help," he maintains. Rasmus Licht emphasizes the importance of specialist clinics to provide patients with treatment that is flexible and consistent. He uses a historical review of the field to explain the critical role of specialist treatments.

THE NEW WAVE

The modernization of psychiatry has occurred in waves. The first wave saw the closing of large mental asylums, which were replaced by community-based mental health care. Here practitioners must be able to treat patients suffering from all kinds of mental disorders, and personnel thus have to be generalists. This can be problematic when new knowledge has to be integrated into clinical practice. As Rasmus Licht explains, "The more knowledge we get, the more community-based mental health care practitioners have to know. And the psychiatric field has experienced great increases in its knowledge. This unleashed the next wave of modernization, as



RASMUS WENTZER LICHT

PSYCHIATRIST, M.D., PH.D

SELECTED POSITIONS

- Psychiatrist and Director of the Mood Disorders Research Unit, Aarhus University Hospital, Denmark
- Member of the Steering Committee on Treatment Guidelines for Affective Disorders established under the World Federation of Societies of Biological Psychiatry (WFSBP)
- Member of the Steering Committee of the Danish University Antidepressant Group (DUAG)
- Associate professor of psychiatry and clinical pharmacology, Aarhus University, Denmark

RESEARCH INTERESTS

- Clinical psychopharmacology

psychiatrists argued for the necessity of specialty clinics, and dedicated clinics for the treatment of for example anxiety, schizophrenia and bipolar disorder began to supplement community-based mental health care."

Rasmus Licht believes that Danish psychiatrists have been good at getting the attention of the country's health policy makers. "Specialty clinics in Denmark have come a long way," he says. Denmark's politicians decided in 2006 that specialty clinics such as the Mood Disorders Clinic in Aarhus were to be made available nationwide. But that is by no means a cure-all, says Rasmus Licht. "A large proportion of bipolar patients do not get sufficient results from pharmaceutical treatment. That is why multidisciplinary efforts that include psychoeducation and psychotherapy are crucial. This allows us to help everyone, although the extent to which we can help does vary greatly."

The clinic's specialized knowledge is also useful when collaborating with local social services. "Our task is to limit all consequences of the disease, including the social effects," he explains.

THE MOST IMPORTANT PROGRESS

Rasmus Licht was appointed director of a newly created research department at the hospital in Aarhus in 1998. The goal was to conduct large, randomized studies that could contribute to promoting evidence-

based treatment. But he believes our faith in the evidence must not be blind. The unsuccessful mania study he conducted as a young doctor left its mark, and the experience leads him to ask tough questions – also of his own research. "The most severely ill patients cannot typically be included in randomized studies," he explains. "Nonetheless, we use the results of such studies to treat those patients, too. Just how far can we generalize? To what extent can we transfer findings from randomized studies?" he asks. It was questions such as these that he attempted to answer in his Ph.D. dissertation. His scientific work led the World Federation of Societies of Biological Psychiatry (WFSBP) to invite him to join its international network, and later to become a member of the steering committee that draws up guidelines for the treatment of bipolar disorder. He recently helped to update them. "The new guidelines must be seen as catalogues of the evidence we currently have," he points out, "and not least as the limitations of that evidence." The WFSBP guidelines can thus only serve as guidelines, not hard rules.

In this connection he would like to see more of a particular kind of study. "It's quite understandable that no company wants its drug to be second choice, so companies focus their studies especially on first choice. This type of study is necessary because it shows us what is efficacious, but in clinical reality this isn't fully sufficient. What do we do when the first choice doesn't work? We don't know enough about this to make really good guidelines."

In fact, psychiatry still has large gaps in its knowledge of how to treat bipolar disorder. Rasmus Licht demonstrates this with an example. "In 1994, at the First International Congress on Bipolar Disorder, the Pittsburgh conference, the use of antidepressants in the treatment of bipolar depression was an important topic of discussion. It still is in 2011. After 17 years, this is still under debate!" He finds that the most noticeable therapeutic progress is demonstrated by the absence of bipolar patients who have been disabled by neurological damage. "Old-fashioned antipsychotics were a standard treatment all the way until the end of the 1990s. Today, the consensus is to avoid such drugs in favour of alternatives. This is the single most important improvement in treatment during the past 25 years."

According to Rasmus Licht, psychiatrists who are interested in bipolar disorder – and not least the patients they treat – still need patience and perseverance. "I think we have yet to see a crucial paradigm shift in our understanding of bipolar disorder, and that we still have long way to go. In the meantime, we need to continue to improve and develop the platform upon which we currently stand," he says. After having treated and researched the disease for a quarter century, he concludes, "Bipolar disorder calls for humility." ●

MENTAL HEALTH AROUND THE WORLD

GREECE
CHINA
FRANCE



A COUNTRY IN A STATE OF SHOCK

Just a few years ago all of Europe was riding atop a wave of economic prosperity. Greece was no exception, but the country was living beyond its means. In the autumn of 2011, psychiatrist Iannis Zervas shares his insight about a country where psychiatry has been struck by sudden and unprecedentedly severe cuts – and a population in free fall.

Everyone in Greece knows someone who has just been fired, says Dr. Zervas. The unemployment rate, currently hovering at 17 per cent, continues to climb. Taxes are also on the rise. And every day brings more news of impending national bankruptcy. In Greece, the economic crisis has become the air that people breathe, and Dr. Zervas reports that a sense of imminent danger permeates everyday life.

Greeks have been taken unawares by a new reality riddled by unpredictability and scarcity. Just a few years ago property prices were rocketing ever higher, people had money in their pockets, and optimism was everywhere. Now, the Greek health care system is registering a 30 per cent increase in the number of inquiries from people with anxiety and depression. But the country's woes are not only economic, says Dr. Zervas. Greece is also in the midst of an identity crisis. "Suddenly the rest of Europe thinks of us as bad boys stealing from them,"

he says. "They see us as corrupt. We know that we have issues, but can we undo thirty years of wrongdoing in one year?"

The task ahead is not only daunting; it is almost crippling in its immensity. For although the calendar tells us we are in 2011, as Dr. Zervas explains, the Greek administrative system could just as easily date from the 1890s. Now the EU demands reforms. While he admits that external demands may be exactly what it takes to effect the necessary changes, he still finds himself in doubt. "How can you move with a gun pointed at your head?" he wonders. The EU's demands might be too overwhelming. "It is a kind of electroshock treatment for the entire country," he explains.

A DOUBLE BIND

Dr. Zervas gives an example of how bureaucratic administration weighs him and his colleagues down in their daily work. Greek hospitals are funded by both the state and by reimbursements from health insurance schemes. Until recently a myriad of small insurers reimbursed costs only after long delays that sometimes lasted for years. Now the government is trying to pull together the various state-sponsored insurance programmes into one organization. So far, however, the crisis has meant that insurance companies are making reimbursements with greater delays than ever before.

Even university hospitals are underfunded for the same reason, and find themselves unable to pay their creditors. A number of suppliers refused to extend credit terms in the autumn 2011, so some

hospitals now lack basic necessities such as rubber gloves and essential medicines. Eginition University Hospital, the psychiatric teaching hospital in Athens where Dr. Zervas works, is no exception. For a while, doctors there had to refuse to hospitalize patients because the hospital could not afford their food or medicine. The hospital has since reopened, but it is still faced with an impossible dilemma. The stipulated reimbursement per patient is lower than the hospital's actual costs; so, the more mentally ill patients the hospital admits, the more money it will lose. On the other hand, if hospitals do not fill their beds, they will be downsized. Dr. Zervas throws out his hands, exclaiming, "It's a double bind!"

BEST-CASE SCENARIO

The so-called troika consisting of the EU Commission, the European Central Bank and the International Monetary Fund is demanding huge cuts in public spending in order to service the loans that stand between Greece and bankruptcy. How will the austerity measures affect psychiatry? "Many services will be cut," replies Dr. Zervas without hesitation. In fact, many services have already been slashed. He informs us that Eginition University Hospital used to provide medication for patients on welfare, and that this local service has now been closed due to lack of funds.

But Greek psychiatry has also been hit hard at the national level. Greek mental health professionals, experts from the international psychiatric community, and the EU joined forces in the mid-1990s to launch an ambitious psychiatric reform programme under the name Psychargos. According to the plan, the



IANNIS ZERVAS

PSYCHIATRIST, DR.

SELECTED POSITIONS

- Associate Professor of Psychiatry, University of Athens Medical School, Greece
- Founder and director of the Women's Mental Health Clinic, Eginition University Hospital, Greece
- Psychotherapy supervisor, Psychotherapy Center, Eginition University Hospital, Greece

RESEARCH INTERESTS

- Women's mental health and perinatal psychiatry
- Non-pharmacological biological treatments
- Depression and anxiety



reforms were to be launched by major EU funding, after which the Greek state would take over daily operations. Many years of work will now be lost. Seventy-five Psychargos programmes, including rehabilitation projects and shelters for the mentally ill, are about to be shuttered.

According to Dr. Zervas, mentally ill patients command very few votes. He entertains scant hope that the government will single out psychiatry for special protection. Moreover, mental healthcare is expensive and must be provided by specialists – the exact opposite of the approach the government needs to take. “The lowest cost, the fewest people, and the least specialized care – that’s what I’m afraid mental health care has to look forward to,” says Dr. Zervas. “The tendency now is to order medical supplies and care based solely on price, not quality.”

As dire as this possible situation sounds, it still represents a best-case scenario. “Because this would mean that we are still functioning. If bankruptcy does come, then I have no idea what will happen.”

PESSIMISM AND HOPE

Dr. Zervas swings between pessimism and hope during our interview. He observes darkly that the most affluent Greeks are leaving the country and taking their money with them. The middle class is on the brink of collapse. Everyone – including politicians, unions, and families – is looking out for himself, and only himself. If Greece defaults, he expects that many types of crime will increase. And yet, he notes, again turning towards hope, he does not expect the country to descend into barbarism. “Even now, I believe Greeks

will form coalitions and care for each other. There is an honour code and sense of hospitality embedded in us. These are very ancient reflexes in the Greek mentality,” he adds energetically, “and I do expect these reflexes to rise to action when they are called upon.”

He imagines that psychiatric professionals could join together and organize themselves to help the mentally ill. An example of such a group already exists in the form of the Women’s Mental Health Clinic, the only one of its kind in Greece, which Dr. Zervas founded and directs. The clinic has been operating since 2004 and has inspired numerous research articles. All this is possible only because the professionals involved donate a day or two of their time to the clinic every week. Dr. Zervas is the only salaried member of staff; he works there full time, and is assisted by a few part-time associates. “We have a group of 15-20 people working with us voluntarily. And we are friends now.” So far this clinic is safe. “They can’t stop this by cutting costs,” he smiles broadly, “because it receives no funding!”

HUMAN VALUES

Dr. Zervas also finds reason for hope in the next generation of Greek psychiatrists. He meets them when he leads postgraduate workshops, and he has great confidence in them. “They are so curious, they are so bright – their minds are sharp,” he enthuses. In some countries psychiatry is regarded as a less attractive medical field in which to specialize. Not so in Greece. “The waiting list to become a psychiatrist is very long. You are not going to make a lot of

THE INFLUENCE OF THE CRISIS IN GREECE



THE UNEMPLOYMENT RATE IS

17%

AND CONTINUES TO GROW



INCREASE IN THE NUMBER OF INQUIRIES FROM PEOPLE WITH ANXIETY AND DEPRESSION

money as a psychiatrist in Greece, and you will get no gadgets to play with. So you really have to want it. But Greeks like the thinking professions, they infuse them with a philosophical viewpoint.”

He hopes that young psychiatrists will be able to experience an environment that is at least somewhat stable, for without this they will emigrate. Such stability is not on the horizon yet. On the very September day that we interview Dr. Zervas, a colleague stops by with the latest news: the government has just announced that the public sector must make another 30 per cent of all employees redundant.

The crisis affects the work of Dr. Zervas and his colleagues intimately. But it also awakens his professional curiosity. Previously he had no professional interest in addiction issues. He does now. It could be very interesting, he says, to investigate the gratification centre in the brains of those who speculate on the stock market with astronomical sums of money. He views the financial crisis, fundamentally, to be a crisis of civilization.

“We have been subjected to selfish profit addicts,” he reflects, “and there has been no room for human values.” The real battle, he believes, will be waged between economic greed and human values. ●

LUNDBECK IN GREECE

WE NEED TO CONNECT WITH OUR ROOTS

General Manager Ioannis Parashos provides some background on Lundbeck in Greece

“In Greece, Lundbeck operates in a business environment that is extremely insecure, and we must focus on two particular areas. First, we must think of our employees. Every day, they go to work in a highly unstable market where everybody talks about a gloomy future, and here it is important that they keep morale high. We invest in our employees and establish long-term relationships: this is Lundbeck’s profile as an employer, and these values must hold true especially in difficult times.”

“Second, we must work on protecting our market position. This means adjusting the way we operate and finding new ways to support our products. We execute only strategies and activities that directly support our mission – to help people who suffer from brain disorders. In the present, difficult times we need to connect with our roots even more.”

Partnerships and corporate responsibility

“A small subsidiary such as ours cannot run corporate responsibility projects on a scale that gives them broad effect. Philanthropy, however, is open to all of us. Among other things, Lundbeck Greece donates clothes and shoes to patients at psychiatric institutions.”

General Manager Ioannis Parashos



THERAPY AREAS

Lundbeck in Greece offers medications for the treatment of:

- Depression
- Anxiety
- Schizophrenia
- Bipolar disorder
- Parkinson’s disease
- Alzheimer’s disease.



SUBSIDIARY OPENED

1995

NUMBER OF EMPLOYEES

71

FACTS AND FIGURES

MENTAL HEALTH IN GREECE

Availability of mental health services

The majority of the population is covered by public health insurance. Until recently, many patients chose to pay out of pocket for mental health services because this gave them a greater range of choice of doctors they could consult. Now, many patients cannot afford the private fees and are returning to the national health system just as this is undergoing drastic cutbacks.⁴

Accessibility of mental health services

GPs, local public health centres, psychiatric hospitals, psychiatric clinics at local hospitals, and private psychiatrists provide mental health care throughout the country. Psychiatrists work primarily in urban areas, while GPs, a few specialists, as well as very few psychiatric units attempt to service the islands and other remote areas.³

The Greek psychiatric community, the EU, and international mental health experts launched an ambitious 10-year reform programme, Psychargos, in the mid-1990s in order to decentralize psychiatry and develop prophylactic and rehabilitation initiatives. The programme was extended for another 10 years in 2004. In 2011, however, major elements of the programme have been terminated due to austerity measures.^{3,5}



POPULATION (MILLION)¹

11.2



TOTAL EXPENDITURE ON HEALTH
per capita (USD)¹

3,085



PSYCHIATRIC BEDS
per 100,000 population²

18



PSYCHIATRISTS
per 100,000 population²

15



PSYCHOLOGISTS
per 100,000 population²

14



NUMBER OF
PSYCHIATRIC NURSES
per 100,000 population²

3

Sources:

1) WHO Country Information, 2009

2) WHO Policies and Practices for Mental Health in Europe, 2008

3) WHO Mental Health Care Atlas, 2005

4) General Manager Ioannis Parashos, Lundbeck Greece, interview September 2011

5) Dr. Iannis Zervas, National University of Athens Medical School, interview September 2011

MY ONLY WORRY IS OUR SPEED

Professor Yu Xin first met modern, community-based mental health care as a young psychiatrist in Australia. The encounter made a deep impression on him, planting the seed of what many years later would become the world's largest psychiatric reform programme.

Professor Yu Xin is president-elect of the Chinese Society of Psychiatry. He directs the Institute of Mental Health at Peking University Hospital. And he is the architect behind a psychiatry reform programme that will affect the lives of one-fifth of the world's population. In short an influential man – which his father certainly was not. Professor Yu grew up during China's Cultural Revolution, a mass political movement orchestrated by Chairman Mao from 1966 to 1976 with the intent of purging the country of bourgeois influences. A physics teacher in Beijing, Professor Yu's father was one of the many who came under the scrutiny of Chinese authorities at the time. "He was too open. The Communist Party didn't trust him so he was sent to labour on a farm for ten years," recalls Professor Yu. And even though he met his father only a few times while growing up, he credits his own openness to that of his father. "This is something that I inherited," he says.

Back when Professor Yu was a boy, China's mentally ill were not regarded as being sick. They were people with a moral weakness who needed to

be re-educated by studying the works of Chairman Mao. Professor Yu does not condemn this treatment as deliberate cruelty. Rather, he views it as a manifestation of what was then believed to be the right thing to do. "Doctors and nurses used to study alongside their patients. It was like a bible group," he explains.

While psychiatry was evolving elsewhere in the world, the profession nearly collapsed in China. The decade of Cultural Revolution left Chinese psychiatry outdated and underfinanced, a health sector with low status and exceedingly few professional practitioners. This is the legacy that reformers are trying to reverse, and one of the key persons in this transformation is Professor Yu.

A GOOD STORYTELLER

Professor Yu began his specialist training as a psychiatrist in 1988, only ten years after the Chinese Society of Psychiatry had resumed operations. He travelled to Australia in the mid-1990s to study geriatric psychiatry at Melbourne University. As was the case in many other Western countries, Australia was then well on its way in closing down large state psychiatric hospitals and replacing them with a modern system of community-based mental health care. The young Chinese doctor arrived in the middle of this reform process.

The difference between Australian and Chinese standards was striking, and the level of care for patients with dementia made a deep impression on him. "The buildings for the elderly were so beautiful and friendly. And not only the buildings – the staff

were so well trained and qualified," he remembers. Initially the gap between Australian and Chinese care seemed insurmountable, recalls Professor Yu. "I was quite disheartened. I thought there was no way we could ever catch up."

In his opinion the biggest challenge facing China was not its outdated and dilapidated psychiatric facilities. "It was the software that was the problem – not the hardware. The system and the people working in it needed a lot of reform. And for reform to happen you need a top-level alliance." It was this alliance that he decided to forge, and it would have to be developed carefully. Even though Chinese psychiatry was neglected, he chose not to view the government as his adversary but rather as people who needed help in order to perceive mental health patients with compassion. "The government is made up of human beings too, and all humans will experience vulnerable times in their life." Nor would he try to frighten government decision-makers into listening to him – even though Chinese media regularly feature macabre accounts of murders committed by the mentally ill. "To be a good storyteller you have to select your story carefully. You must not tell shocking stories, but stories that reach for the heart."

The alliance grew slowly over the course of several years. There was never any grand opening ceremony, Professor Yu notes with a smile. The SARS virus epidemic in 2003 provided some unexpected momentum when hospitals collapsed under pressure from panicked citizens, laying bare the need for comprehensive health care reform. A network of local community care units, which also covers rural areas,



YU XIN

PROFESSOR, GOVERNMENT ADVISOR

SELECTED POSITIONS

- Director of the Institute of Mental Health, Peking University Hospital, China
- President of the Chinese Society of Psychiatry
- Member of the Chinese Ministry of Health's advisory board on mental health

RESEARCH INTERESTS

- Geriatric psychiatry
- HIV-related mental health
- Early psychosis intervention



was selected as the path forward. This infrastructure was a natural fit for community-based mental health care as well.

The turning point for Chinese psychiatry came shortly after the SARS epidemic. The government decided to put mental health on its list of national public health concerns.

EVERYBODY LOOKS CONFUSED

This prioritization gave Chinese psychiatry a tremendous boost. A government grant made it possible to create a reform plan that would combine foreign expertise with insight into Chinese conditions. Professor Yu's contacts at Melbourne University formed the core of the consortium, the Asia-Australia Mental Health Partnership (AAMH), which was responsible for formulating the plan.

During this period Professor Yu organized a workshop in Beijing where key players in Australian psychiatry introduced the concept of community-based mental health care to their Chinese colleagues. But the atmosphere at the meetings was tense. "If you look at photos from that event, everybody looks so confused, so distressed," he recalls. The Australian delegation felt that they talked and talked and got no response: the Chinese psychiatrists seemed unengaged. In fact, they were deeply troubled. From their perspective, reform plans threatened the very foundation of their livelihoods. Professor Yu relates

that it was no longer China's politicians who had to open up to the possibility of reform – it was China's psychiatrists.

What they had to understand was that now that the government had them in its sites, they would get more patients and a unique opportunity to improve the low status of their profession. Professor Yu once again worked to open the alliance partners to each other's point of view. Among other things he made sure that senior Chinese psychiatrists travelled to Melbourne to study community-based mental health care in practice. In the end, there was no way around it. "The government gave them a strong push and told them to just do it!"

A NUMBER OF ACTIVITIES

The consortium has kicked off a number of activities in recent years. Sixty new community-based psychosis management centres have been built, insurance coverage for mentally ill patients has been expanded, research projects have been initiated, and health professionals have been trained. Professor Yu draws special attention to the modernization of psychosis treatment as a major success. In the past psychotic patients were hospitalized and then discharged without follow-up. When they had a relapse, the cycle repeated itself again and again until patients were in such bad shape that they had to be hospitalized for an extended period. Now mental

health care providers can offer such patients coherent and continuing care.

The reform team knows full well that it cannot simply copy the Australian model. The two countries are far too different. The Chinese can, however, learn from the Australian experience and also avoid repeating their mistakes. Back in the 1990s, for example, reducing the number of psychiatric hospital beds was considered a good thing no matter what. But now we know better than that, says Professor Yu. "People used to think the fewer beds, the better. But this was wrong! We will always have acute cases that need to be hospitalized." But it is how we hospitalize that must be modernized, he emphasizes. The way forward is short-term hospitalizations that are as voluntary and respectful as possible.

According to the World Health Organization (WHO) mental disorders have now grown to be the greatest burden on China's health care budget, surpassing even the costs of heart disease and cancer. The need for solutions is overwhelming. That is exactly why Professor Yu stresses the need for reflection, and for making sure that the reform process is driven by evidence-based management. Because when the government makes a decision, this in itself releases a tremendous force. "The only thing I worry about now is our speed," he says. "Build, build, build! Hospitals! Equipment! Research! In China, when something starts, it never stops," he adds with a smile. "And it always goes too fast." ●

A CURABLE DISEASE

Psychiatrist Si Tianmei is one of China's few psychiatrists. She experiences widespread ignorance of mental disorders among her patients, but notes that the young are more knowledgeable.

It is not always easy for psychiatrists to treat people with depression, chief psychiatrist Si Tianmei explains, but it is even more difficult if patients are their own worst enemy. As she often observes in her own practice, her patients' reluctance to accept the diagnosis of depression is a problem in its own right.

Dr. Si has researched and treated mental disorders since she finished medical school. After completing her Ph.D. in psychopharmacology, she traveled to Denmark in 1999 to study psychiatry at Sankt Hans Hospital in Roskilde. She has now been treating patients for 11 years at Institute of Mental Health, Peking University Hospital in Beijing, China.

"Most Chinese people react with dismay when they are told they are depressed, it makes them see themselves as weak. So the fact that I make such a diagnosis is quite a blow in itself," says Dr. Si. "Things have improved over the last few years, but there are still many patients who cannot handle it. For them, the diagnosis can be tougher to live with than the depression itself. So I have to tell patients that depression is a disease that frequently occurs in normal people."

Outside the hospital's main entrance stands a large blue sign with the names of the hospital's psychiatrists, their office hours and prices. Here patients can see that Dr. Si specializes in psychiatric disorders, psychopharmacology and clinical medicine. Next to her name is also listed how much her consul-



SI TIANMEI,
PSYCHIATRIST, M.D., PH.D.

SELECTED POSITIONS

- Chief psychiatrist, Institute of Mental Health, Peking University Hospital, China
- Director for the Department of Clinical Pharmacology at Institute of Mental Health, Peking University Hospital, China

RESEARCH INTERESTS

- Psychopharmacology
- Depression education

tations cost: CNY (Chinese yuan) 17 on Tuesdays, and CNY 300 on Wednesdays (corresponding to USD 2.50 and USD 50 respectively). An average monthly salary in Beijing is CNY 3,000, so seeing the doctor on a Wednesday can be expensive if you do not have health insurance that covers the cost of the visit.

"Consultations on Tuesday are of course still one-on-one," Dr. Si explains, "I just have less time for each patient. Tuesday patients often just need to renew a prescription for their medication, while Wednesday patients need more time. Patients get a half to a whole hour in a long consultation, while a short consultation takes five minutes."

NOT ENOUGH PSYCHIATRISTS

Even though the blue sign at the hospital entrance lists more than 80 psychiatrists, this is far from enough to handle the enormous demand. According to Dr. Si there are only 20,000 psychiatrists in China. In a country with nearly 1.4 billion inhabitants, this is a drop in the ocean: one psychiatrist per 70,000 people. Compare this with the United States, which according to the World Health Organization (WHO) has more than one psychiatrist per 20,000 inhabitants. A study in *The Lancet* reveals the consequences: only one in twelve Chinese persons in need of psychiatric help actually gets it.



"Improving the quality of treatment is critical, especially as regards making the correct diagnosis. We have a limited number of psychiatrists, and because some patients go to general practitioners, we need to train doctors so they can quickly make the correct diagnosis and provide proper treatment," says Dr. Si.

A STIGMATIZING DISEASE

Depression is a stigmatizing disease in China. As Dr. Si points out that, it is seen as a sign of weakness. "Most people don't want to tell their surroundings about their depression. They're afraid their colleagues will see them as strange and crazy. But they are willing to talk openly about their problems at the hospital." The Chinese characters for mental illness are 精神病 – *jīng shen bing* – or 'disease of the spirit' in direct translation. Having a mental illness means that there is something wrong with the personality, with the innermost essence of a person's being. To be called *jīng shen bing* is a common insult in Chinese society, and the term is often used for people who express a ridiculous idea or behave strangely.

"There is a traditional bias toward depression throughout Asia, so some patients ask me to give them a milder diagnosis, for example neurasthenia, which means 'weak nerves'," explains Dr. Si. "Neuras-

thenia is a more acceptable diagnosis because it indicates that you've been under too much pressure at work and have suffered from insomnia. But this is no longer an officially recognized diagnosis, so it is not something that I can make use of in our hospital." She can, however, diagnose "depressive state", which means that the patient shows signs of depression without yet having a depression.

Another problem with the depression diagnosis is that most Chinese are convinced that depression is incurable. "I treat many patients who themselves have prejudices about the disease. As a psychiatrist I try to teach them about depression, and explain to them that the disease is curable. I tell them that they will be able to function quite normally if they are cured of their depression," she adds. "Hopefully, the patient can understand this, and thus be able to tell his surroundings that even though he has a depression now, the disease isn't a permanent condition."

A CHANGING SOCIETY

It is far from all patients who get to see a psychiatrist such as Dr. Si when they need to. As China becomes increasingly affluent, the incidence of stress-related problems is also on the rise. One example of this trend is a number of highly publicized suicides that

PSYCHIATRIC HELP IN CHINA



1/12

PATIENTS ARE RECEIVING THE NEEDED
PSYCHIATRIC HELP



have occurred among young professional women in Shanghai, China's bustling capital of finance and business. One such case was that of 33-year-old Liu Ying, the City of London's chief representative in China, who hung herself in her company parking garage in April, 2011. "It's always been the same: the better your job, the greater your responsibility and level of stress. The rewards of a job are equal to its risks. You simply have to prepare yourself mentally," says Dr. Si. "Some of these women seem to be striving for perfection, but perfection is a dream and not a reality. That is why they should consider perfection as an unattainable goal – and not a condition that they can achieve."

Although Dr. Si reports that twice as many women as men come to psychiatric hospitals, it is not only Chinese women who are under pressure. Chinese society has changed markedly over the last thirty years. China has transformed from a highly planned society to a place where traditions are rapidly falling away and life is increasingly unpredictable. Expectations of young people born under the one-child policy are particularly high. Chinese-American Amy Chua, a professor at Harvard, recently caused an uproar with her book, *Battle Hymn of the Tiger Mother*, which sharply contrasts Western and Asian parenting methods.

China's one-child policy reinforces the demand to succeed that young people growing up in East Asia already experience. Instead of parents' expectations being spread among several children, their one child must live up to all of their dreams. "The one-child policy creates social problems. Some parents have ambitions for their children that are much too high, and parenting practices are neither correct nor good," says Dr. Si. "Higher parents' expectation are very common in China, and often result in the child hating school." Dr. Si often meets the negative consequences of Asian parenting in her consultation.

But like so many other cultural developments in China, perceptions of mental disease are also evolving rapidly. "Already now, young patients know more about mental illness than their parents," says Dr. Si. "Older people often point to physical symptoms such as insomnia and upset stomach, while people born after 1980 are generally well informed." ●

LUNDBECK IN CHINA

THE GOVERNMENT'S OPENNESS HAS ENCOURAGED US

General Manager Herman Santoni provides some background on Lundbeck in China

"Mental illness has now overtaken heart disease and cancer as the biggest strain on the Chinese health care system. The government has initiated several major programmes in recent years to lift the burden. The government's openness has encouraged us to strengthen our presence in China, and our new research centre and our new production plant are a reflection of that."

Partnerships and corporate responsibility

"Since 2008, we have been able to work with the government in several partnership projects through the Lundbeck Institute. Chinese physicians working in primary care do not receive adequate training in mental health care, and this leads to a severe treatment gap. The Lundbeck Institute works to address this issue, offering GPs workshops in the detection and treatment of mental illness.

"Although almost one-fifth of the world's total dementia population lives in China, there are very few care facilities for the elderly. The Lundbeck Institute also offers support and training programmes to families who must care for a family member with dementia."

General Manager Herman Santoni



THERAPY AREAS

Lundbeck in China offers medications for the treatment of:

- Depression
- Anxiety
- Alzheimer's disease.

In China, Lundbeck also operates the Lundbeck Institute, a non-commercial platform providing evidence-based education and information. A research centre opened in Shanghai in 2011, and a production plant will open in Tianjin in 2012.



SUBSIDIARY OPENED
1998

NUMBER OF EMPLOYEES
165

FACTS AND FIGURES

MENTAL HEALTH IN CHINA

Availability of mental health services:

Approximately 90 per cent of China's population has at least very basic health insurance; however, insurance does not automatically cover mental health services. The costs of mental health care services are covered by out-of-pocket spending, insurances, and taxes in that order. Services are expensive; for example, the one-month fee for in-patient care is equivalent to average wages for four to eight months. A government-funded initiative is currently working to expand health care coverage – including mental health care – in both rural and urban areas.^{1,2,3}

A national mental health law that protects patients from being hospitalized against their will and promotes transparency in patient treatment is in the works.⁴ Mental illness was added to the list of national health concerns in 2004, and the largest mental health reform programme in the country's history was initiated.⁵

Accessibility of mental health services:

There is a severe lack of health care professionals working in mental health care services, especially in rural areas. Institutions such as the World Health Organization (WHO) and the Asia-Australia Mental Health consortium (AAMH) collaborate with the Chinese government and academic institutions, and conduct training programmes for doctors and other mental health professionals.^{2,6}



POPULATION (BILLION)¹

1.35



TOTAL EXPENDITURE ON HEALTH
per capita (USD)¹

309



PSYCHIATRIC BEDS
per 100,000 population²

0.106



PSYCHIATRISTS
per 100,000 population²

1.29



PSYCHOLOGISTS
per 100,000 population²

N/A



NUMBER OF
PSYCHIATRIC NURSES
per 100,000 population²

1.99

Sources:

- 1) WHO Country Information, 2009
2) WHO Mental Health Care Atlas, 2005

- 3) The Lancet, November 2008
4) China in Focus, June 2011
5) Australia China: Beyond Tomorrow

- 6) Professor Yu Xin, Institute of Mental Health,
Peking University Hospital, Interview 2011

CHANGING THE WAY SERVICE IS PROVIDED

Since the launch of Fondation FondaMental in 2007, the foundation has established a number of expert centres throughout France for bipolar disorder, schizophrenia and Asperger's syndrome. Setting up the foundation was surprisingly easy. But the venture can only survive if the foundation's director, psychiatrist Marion Leboyer, secures funding on an ongoing basis and if volunteer specialists continue to donate their time.

The infrastructure of French psychiatry has in many ways stood still since the 1960s, says psychiatrist Marion Leboyer. Whereas treatment of somatic illnesses has evolved to gather expertise in units where specialists practice, research and evaluate their efforts in a systematic way, the organization of psychiatry, particularly in France, has lagged behind.

The result is that the quality of patient care varies depending on where in France a patient lives. It was this lopsided development that provoked Dr. Leboyer to action. "Our system is based on geographic location, not on expertise," she says. "It is just assumed that everyone is able to treat any mental health patient."

Therefore Dr. Leboyer had a plan ready when the French Ministry of Higher Education and Research called for proposals for innovative health-care projects in 2007. She did not expect a bid from the psychiatric community to have very good chances, as psychiatry in her experience is the health sector that usually receives low priority. But she could just as well think big from the start, she now laughs.

Dr. Leboyer proposed the creation of a network of expert centres for bipolar disorder, schizophrenia and Asperger's syndrome. The centres would be tasked with detecting and diagnosing these diseases earlier and more accurately, establishing research platforms that also disseminate research results to the public, training health workers, and providing treatment and psychoeducation to patients and their families.



MARION LEBOYER
PROFESSOR, PSYCHIATRIST, M.D., PH.D.

SELECTED POSITIONS

- Director of Fondation FondaMental, France
- Professor of Psychiatry, University Paris-Est Créteil, France
- Head of the 'Psychiatry Genetic' INSERM Lab, Mondor Institute of Biomedical Research, France

RESEARCH INTERESTS

- Genetic and environmental risk factors
- Immuno-inflammation
- Cohorts

To her delight, the ministry looked favourably upon her proposal and gave her a double gift: she was granted funding to start the project as well as permission to create an endowment fund which could receive both private and public contributions. Just four years later, 22 centres are now active throughout France and Monaco. "What we are offering should start changing the way service is provided," she says. "It's a very simple idea."

A LOT OF FEAR

The need for help can easily go undetected and only reveal itself when treatment is made available. Then, the pent-up demand may surprise everyone, including professionals. When the first bipolar expert centres opened, demand skyrocketed by 500 per cent. And at Asperger centres Dr. Leboyer sometimes diagnoses middle-aged patients who could have received help as children.

General practitioners in France can now refer patients to FondaMental's specialists for diagnosis and advice for treatment. Dr. Leboyer explains that the centres engage in an ongoing dialogue with the



doctors about their patients. This collaboration transfers knowledge to physicians and allows them to integrate it in their day-to-day practices; at the same time, it also helps close the gap between psychiatry and the rest of the health sector. Both parties make use of the same medical journal to document what happens at each stage of treatment and provide continuity in patient care.

Nonetheless, Dr. Leboyer points to the centres' direct contact with patients as the decisive factor in improving the quality of care. It can be difficult for patients to accept a diagnosis, she says. "There is a lot of fear involved, and patients don't normally understand their diagnosis. We are able to give them a personalized explanation of their disorder, to tell them where they stand in social care, where they stand with medical and psychiatric comorbidity. They understand in a more mature way, and we see better adherence to treatment."

WE NEED TO GIVE

Dr. Leboyer emphasizes that while FondaMental is fortunate to have the favour of French policy-

makers, it still faces a number of obstacles. She points to three main challenges that the foundation must constantly strive to overcome. The first of these is funding. The grant from the Ministry of Higher Education and Research was earmarked to launch the project, but the foundation has had to secure funding on its own since then in order to survive. "We receive no permanent public funding at all. So we must reapply for donations all the time, and we are desperately looking for private funding."

So far, the foundation has been successful in raising enough money to keep it operating and to finance new projects. But it can never make plans according to a regular income stream, and its resources do not allow it to make long-term strategic investments. Dr. Leboyer mentions an enormous donation of €500 million which a Portuguese foundation received to support the biomedical sciences. Such donations are the stuff of a foundation director's dreams, she says.

It is certainly not wages that weigh most heavily on FondaMental's budget. Foundation specialists derive from of a core group of 30-40 departments and research laboratories affiliated with public institutions; a number of young psychiatrists and

psychologists are also periodically associated through the expert centres. Most of the medical and para-medical staff work for free alongside their regular jobs. There is just one reason for this gift of time, says Dr. Leboyer. "We need to give because there is such urgent need. The job is enormous and our progress is not fast enough."

RESISTANCE TO CHANGE

The second challenge facing FondaMental is the reluctance of mental health stakeholders to embrace change, says Dr. Leboyer. In 2009 the foundation prepared a report documenting the direct and indirect costs of mental illness in France. Dr. Leboyer had high expectations for the impact the report would make. "I'm very optimistic. I was convinced I could change the mental health stakeholders and their views." But when the report was presented it was met with resounding silence. "Nobody seemed interested," she recalls. "Resistance to change is a major problem."

In her view, policymakers are also too slow to change their vision of the organization of mental

health diagnosis and treatment. "We have to change our focus toward prevention. Research has provided us with new hypotheses and we must change our views accordingly. It is so frustrating because we know how we could improve our work. There is so much to do, and we could do much more."

A BENEVOLENT SOCIETY

Society is hard on mentally ill people. It rejects them in a way which physically ill people rarely experience. FondaMental's mission statement sets its course as an organization that "embodies a promise of genuine modernity by transcending common beliefs in striving to attain a benevolent society." Stigmatization of mentally ill people is the third challenge that FondaMental chooses to meet, and new research is one of its weapons. While it might be true that decades may pass before new knowledge makes its way from laboratories to patients in the form of better treatment, new insight can still empower great changes.

"The first discovery in autism made a tremendous change," explains Dr. Leboyer. Lay people often view autism as the result of growing up with uncaring parents. "But we found functional mutations in the genes encoding synaptic proteins. Now we are able to explain to families how this is a disorder like any other somatic disorder. Even if research doesn't bring treatment, it can bring important societal impact," says Dr. Leboyer.

Her own research contributes to a better identification of phenotypes in genetic research – in particular for bipolar disorder, schizophrenia and autism. "We are not created equal in meeting risk factors. My team's new field of research focuses on immuno-inflammation pathways, and we are starting to find new biomarkers that might lead to the discovery of innovative therapeutic strategies."

In the meantime, the FondaMental network is becoming increasingly widespread as it accredits new centres under the banner of the foundation. "We have reached a stage where it is essential to develop research to better diagnose, better treat and improve the quality of life of our patients. Our name reflects the deep conviction that psychiatric research is basic, fundamental." ●

LUNDBECK IN FRANCE

WE ARE STRONGLY COMMITTED TO THE IMPROVEMENT OF PATIENT OUTCOMES

Medical Director, Dr. Sylvia Goni provides some background on Lundbeck in France

"We are committed to supporting the evolution of French mental health care to improve patient outcomes.

Lundbeck is conducting clinical research in France in cooperation with 56 hospitals. We are deeply involved in improving the quality of research environments in collaboration with local institutions such as the research network CenGEPS. We also conduct observational studies to evaluate the impact of depression at work and in family and social settings. And we are investigating the impact of Alzheimer's disease in nursing home emergencies, and the causes of patient discrimination in France."

Partnerships and corporate responsibility

"It is our responsibility to disseminate the most accurate knowledge of neuroscience available. Toward this end we currently sponsor two high-level think tanks, so called Forums. The Psychiatry Forum focuses on the interaction between the neurosciences and society, while the Neurology Forum is dedicated to clinical research in neuropsychology. The findings of these Forums provide input to the educational programmes that we conduct throughout the country to improve the level of knowledge among specialists and general practitioners."

Medical Director, Dr. Sylvia Goni



THERAPY AREAS

Lundbeck in France offers medications for the treatment of:

- Depression
- Anxiety
- Parkinson's disease
- Alzheimer's disease.

A medication for the treatment of bipolar disorder is expected to be added to the portfolio in 2012.

Since 2009 Lundbeck France also operates the production plant Elaiapharm in Sophia-Antipolis.



SUBSIDIARY OPENED

1992

NUMBER OF EMPLOYEES

550

FACTS AND FIGURES MENTAL HEALTH IN FRANCE

Availability of mental health services:

Mental health care services are financed by public health insurance. More than 75 per cent of total health expenditures are covered by the public health insurance system. More and more people are adding supplemental private insurance to cover some or all of non-reimbursed costs.^{3,4}

Accessibility of mental health services:

Mental health care is provided by both the health and social services. Care options provided by health services include public, private non-profit, and for-profit. The number of psychiatrists per capita in France is among the top five in Europe. However, since almost half of all French psychiatrists work in private practices, there is a shortage of psychiatrists in public hospitals.^{2,4,5}

The French government launched a mental health care plan in 2005 that is currently being implemented. Among other issues, this plan addresses the imbalanced geographical availability of mental health care and the lack of coordination between the public health and social services on the one hand, and self-employed specialists and the private sector on the other.⁵



POPULATION (MILLION)¹

62.3



TOTAL EXPENDITURE ON HEALTH
per capita (USD)¹

3,934



PSYCHIATRIC BEDS
per 100,000 population²

95.2



PSYCHIATRISTS
per 100,000 population²

22



PSYCHOLOGISTS
per 100,000 population³

5



NUMBER OF
PSYCHIATRIC NURSES
per 100,000 population³

98

Sources:

1) WHO Country Information (2009)

2) WHO Policies and Practices for Mental Health in Europe (2008)

3) WHO Mental Health Care Atlas (2005)

4) The WHO World Mental Health Surveys, 2008

5) France, Health System Review, European Observatory 2010



JEAN-CLAUDE PARENT

- In 2008, Jean-Claude was diagnosed with Parkinson's disease.
- At that time he worked for the town planning council constructing roads.
- Although he is eligible for disability allowance, he insists on continuing to work.
- He is known as a man involved in his local community, and has volunteered to help the patient association, France Parkinson, build their chapter in northern France.



THE UNINVITED GUEST

Jean-Claude Parent is a pillar of his local community. Parkinson's disease has changed his life, but it didn't change his involvement.



Three years ago, Jean-Claude Parent was an energetic man of forty-six who worked for the town planning council constructing roads. His wife, Nathalie, was a nurse's aide and both were well known as people who were involved in their community. Their home was that place in the neighbourhood where kids would go to hang out. Then Parkinson's disease arrived in their lives.

As a neurological disease whose symptoms and progression vary with each individual, Parkinson's disease has many faces. Here, it struck a man who tries to cope by reaching out to other patients.

Jean-Claude Parent is from Maubeuge, a small French town near the Belgian border. An active man who has spent his life working for the town council, Jean-Claude is a familiar face in the area because of his extensive community involvement. His wife Nathalie jokes, "He was always part of some club or another. I met him through a community group promoting regional folk dancing when we were in our twenties." After their two children, Lucie and Maxime, came along, he became president of the Parent-Teachers Association and was active in the soccer league. He even managed to find time for his hobbies – fishing, keeping birds and fish, and gardening.

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AT FIRST IT WAS LITTLE THINGS, LIKE NOT BEING ABLE TO PUT IN A SCREW. I THOUGHT I HAD SIMPLY OVEREXTENDED MYSELF AND PUT IT ASIDE TO DO LATER.

A SERIES OF ADJUSTMENTS

But his energetic life began to grind slowly to a halt as he experienced symptoms he couldn't understand. "At first it was little things, like not being able to put in a screw. I thought I had simply overextended myself and put it aside to do later." But his wife Nathalie's medical experience told her that something was really wrong. "He would have bad cramps at night, and during the day could simply sit down in his armchair and fall asleep. He had never done that before – he's such an active guy." She urged him to see the doctor. Since he had known Jean-Claude for a long time, the doctor suspected Parkinson's immediately and quickly referred him to a neurologist, who made the diagnosis. "It really hit me hard," Jean-Claude remembers. "I went back to the car and cried like a child. I didn't want to tell anyone, not even my family. But when I got home, Nathalie was waiting for me. The first thing she said was, 'You got your diagnosis and you've been crying!' I can't hide anything from her. My family rallied around me right away, and that helped a lot. But I couldn't really accept the diagnosis. I admit that I didn't have confidence in my neurologist; he had had a stroke and had some lasting physical repercussions, and I

wasn't so sure of him at first and I kept on thinking that there must be some mistake."

Jean-Claude decided to consult a professor at the research hospital in Lille. "I recoiled when I entered the waiting room and saw all these people in such bad shape and in wheelchairs. I said to my wife, 'If this is Parkinson's, then I can't deal with it.' I was terrified of ending up like that. I clung to the notion that I had been misdiagnosed, but the professor looked over my case file and said, 'I'm 95 per cent sure that you have Parkinson's.' When I expressed doubts about my neurologist, he discussed my treatment in detail and convinced me that I was in good hands."

Eventually, the neurologist Jean-Claude first doubted became his trusted physician and confidant. When asked if his acceptance of his doctor's disabilities mirrored his own progress towards an acceptance of his illness, he agrees. "We have a relationship where we can confide in each other about the challenges of dealing with a chronic illness. I consider him a friend."

Life became a series of lessons and adjustments as Jean-Claude learned to live with Parkinson's. "I read about Parkinson's being an uninvited guest that arrives in your home. It may never leave, but you can try and make it live by your rules."

One hurdle for him is the on/off syndrome, the sudden and often radical shifts between normal functionality and a non-functioning state common in Parkinson's patients. "Some days I feel great, and on others, it's as if I don't exist. I come to a complete

stop. It's not always easy for people around me to understand when they've just seen me well. Also, I tend to forget simple things, and this sends me into a panic. Once I went to the grocery store and couldn't remember the code for my debit card. I could make the payment in cash, but I came home and ended up crying. My wife couldn't figure out why I was so upset, but it's terrifying."

Jean-Claude needed help. Even though he was immediately eligible for disability allowance, he insisted on continuing to work. His employers switched him to a desk job where he now coordinates cultural activities for the town. As he gratefully acknowledges, "I have the most supportive staff. They asked for information about my condition and they give me the flexibility I need to be able to function."

THE HONEYMOON PHASE

Thanks to the support of his family and the understanding he has received from friends and colleagues, Jean-Claude has had the strength to cope in the way that seems most natural to him: by connecting with others in the same situation. He contacted a patient association, France Parkinson, and volunteered to help the Paris-based association build their chapter in northern France.

He set out with characteristic enthusiasm to marshal his "troops" and connect with fellow Parkinson's patients, and he has now become a

determined spokesperson for his association. He lectures regularly on coping with Parkinson's, and recently put together a conference, together with the professor he consulted in Lille, that was attended by around 200 people.

Patients and their relatives often contact him for advice. One woman called about her partner, who had been diagnosed with Parkinson's and had alienated his family because he had initially denied his illness and refused medication. They couldn't cope with his symptoms. As a result, he isolated himself and never left his home except to see his doctor. Jean-Claude went to meet them. "I recognized him by his gait, typical of a Parkinson's patient. We headed off to a nearby café, just the two of us, and talked for an hour comparing notes about the illness. That's always interesting since none of us has exactly the same symptoms. As we made our way back, he laughed. Seeing him laughing after so long, his partner burst into tears. She asked, 'Mr. Parent, what did you do?' There's no magic involved, just connecting with people. Now he comes to meetings regularly and I even got him to do a radio interview!"

Jean-Claude is enthusiastic when he discusses his work with France Parkinson. "We're trying to promote awareness of Parkinson's and its specific requirements among physical therapists and other caregivers. I have also signed up a group of Parkinson's patients from the area for a spa retreat – at one of the three spas in France which specialize in treating neurological disorders, and are subsidized by the French national health insurance."

While helping others also helps Jean-Claude to maintain his dignity in the face of a debilitating disease, he still needs to balance his volunteer work with the demands that Parkinson's makes upon him. "Sometimes people call and want to talk for an hour, and then I'm exhausted. But I've received training from the association on how to set limits." He stresses that his family also has to deal continuously with the realities of his illness. "In a sense, I'm not the only one who has Parkinson's disease."

"Still," he says, "I'm lucky. I'm in the 'honeymoon phase' of Parkinson's, as my doctor puts it, and I intend to be as active as possible for as long as possible. Parkinson's might be my uninvited guest, and sometimes it would be nice to be able to lock it up and throw away the key, but you have to find a way to co-exist." ●



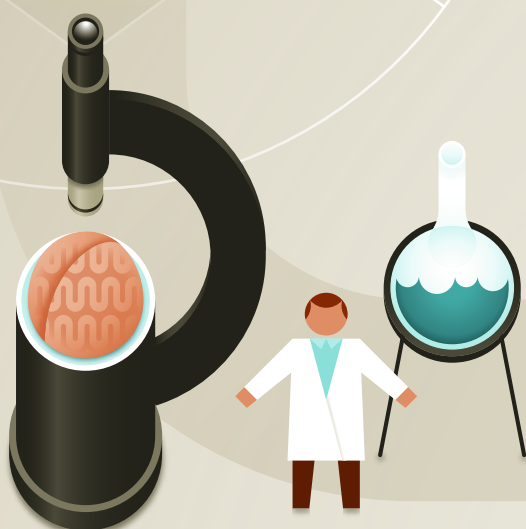
FROM IDEA TO PATIENT

1



1 of 10

2



3



700 MILLION IN THE WORLD

According to the World Health Organization (WHO), 700 million people worldwide suffer from brain disorders. These are serious and life-threatening illnesses that affect not only patients' quality of life, but also that of their families and friends. For society in general, the illnesses also have major economic consequences. During the past 50 years, novel drugs have revolutionized the possibilities of treatment. However, there is still a huge unmet need. Development of new and innovative drugs is pivotal.

FROM IDEA TO DRUG CANDIDATE

Lundbeck has research units in Denmark, China and in the US. The basis for developing a new drug is deep insight into the disorder itself, and into the unmet needs of patients. The process from an idea to a drug candidate is complicated. Researchers work to identify where in the human organism a new drug must act and to test substances for efficacy, side effects and toxicity. If a substance passes all of these tests, it becomes a drug candidate. This process typically takes between three and five years.

FROM CANDIDATE TO APPROVED DRUG

Lundbeck conducts the development activities that are necessary for a drug to be approved in some 40 countries around the world. First, a substance is tested in healthy persons for its tolerability, assimilation and distribution in the body. Following this, its efficacy and side-effect profiles are tested in a small group of patients. In the third and decisive phase, the drug is tested in a large group of patients. Developing a new drug is very demanding, and normally takes between eight and ten years.



PRODUCTION OF DRUGS

A drug must be safe and efficacious. It must also be possible to produce it in large amounts and in a manner that enables patients to take the drug and assimilate it optimally in the body. Lundbeck manufactures its own drugs in Denmark, France and Italy. Lundbeck also collaborates with a number of other companies on various phases of the production process, ranging from supply of raw materials and semi-finished products to pharmaceutical production and packaging of the drugs.

DISTRIBUTION OF DRUGS

Lundbeck's drugs are registered in approximately 100 countries. As the products are prescription drugs, doctors decide when patients will benefit from them. Lundbeck's own representatives are in charge of spreading the knowledge of our products to doctors in 57 countries. Further the knowledge is spread through publications in scientific journals, participation in scientific conferences, and through meetings with doctors and specialists.

GLOBAL PRESENCE

Today, Lundbeck is a global pharmaceutical company focusing on developing new and innovative treatments for brain disorders.

Headquartered in Denmark, Lundbeck employs more than 6,000 employees in 57 countries, and markets its products in approximately 100 countries. Lundbeck has competencies and activities throughout the value chain: research, development, production, marketing and sales.

I DIDN'T FEEL SAD

Canadian Rebecca DiFilippo did not relate her dark thoughts to depression. When she finally accepted that she was ill, she felt ready to die – and found herself driving her car through a red light more than once.



REBECCA DIFILIPPO

- Rebecca owned a prepress company from 1988 to 1999, which at its peak employed 17 people and had an annual turnover of CAD 1.8 million.
- She began treatment for major depression in 2001.
- In 2003 she started *Moods Magazine*, a lifestyle publication that provides information on depression and other mood disorders. It is published four times a year with a circulation of 30,000.
- She exercises five times a week and has changed her diet in consultation with a nutritionist.
- She enjoys painting, reading and going out with friends – pleasures that were unthinkable in her old life.
- A few too many tears are her warning that a relapse may be on its way. It has happened a few times, most recently when her former father-in-law passed away. She has managed to nip her relapses in the bud.





Every morning Rebecca sneaks into her office without greeting her staff and sits down to stare at her computer screen. The dread of making decisions is paralyzing: what if she makes a wrong one? She has not been able to concentrate for months. Her employees must despise her, there is no doubt in her mind. A supplier recently let her know what her production manager told him when asked where she was. "Probably running around like a chicken with its head cut off," was his reply. Behind her closed door she agonizes about staff stealing from her: Postage stamps. Pens and customers.

It has not always been like this.

Ten years earlier, in 1988, Rebecca was 30 years old and well on her way to building a successful prepress company in Toronto. A new world was opening up for her. "The printing business is a man's world and you need to be smart. I knew the process down to the last detail and I was good with people, good at motivating them," she relates. It was also at this time that she got married. "Carlo adored me and we wanted a lot of children. He was a kind, gentle and patient man." His large Italian family showered her with a warmth that she had never before experienced. The couple had a daughter, Gabriella, and Carlo quit his job to work as director of sales and technology at Rebecca's company. "I felt secure," she remembers. "I felt that they all loved and depended on me. It was O.K. to be who I was."

Rebecca had success. Or rather: success had Rebecca and nearly drove her to the brink. Up at six to bring Gabriella to Carlo's aunt for the day, at the office by seven-thirty, and the last to leave at nine or ten in the evening. "I didn't want to be the kind of boss who rests while others work. I wanted their respect," she says. When Carlo joined the company she enjoyed working with him. "I was always bubbly then, always a doer."

But if she on occasion thought she might have been "too spontaneous" or "too clumsy" it would make her cringe. "I felt so bad if I did something unprofessional. I'd stew about it for days." And her real purpose in creating the company had been to eventually let go of it and have Carlo take over. "I wanted to quit, have more children and be a stay-at-home mom."

And then in the summer of 1993 an unexpected event upended all of her plans.

I KEPT THE FACE

Carlo fell. On his way to a client meeting, he got out of his car with an armful of presentation boards, lost his balance, and slammed his head into the asphalt with such force that his doctors did not believe he would survive. He did. But the fall injured the 36 year-old's brain so that he could walk only with difficulty, was deaf in one ear, and was so visually impaired that he could not work. He suffered from seizures and his diabetes got worse over the

next few years. Then there were a couple of heart attacks, followed by a bypass operation. His kidneys were failing.

Above all, Carlo had turned into a stranger. The brain damage changed his personality so that he flew off the handle without warning and was careless about his diabetes. Low blood sugar may provoke violent, uninhibited behaviour and then life-threatening insulin shock in diabetics. Carlo could devour a bag of potato chips even though they exacerbated his condition and sent his blood sugar plunging. Rebecca had to call for an ambulance on several occasions.

Rebecca continued to run the company while taking care of her husband and child. "I kept the face. I never complained." When she sank into the sofa at Sunday dinners with Carlo's family, no one seemed to notice how hollow-cheeked she had become. They were too busy with Carlo and Gabriella.

In 1995 she went to her family doctor because of heart palpitations and dizziness, which she believed to be signs of early menopause. But the doctor suspected anxiety and referred her to a psychiatrist who diagnosed depression. This made no sense to Rebecca. "The psychiatrist didn't explain the symptoms of depression and I didn't feel sad. I didn't argue. I just took the prescription and left shaking my head." She threw the prescription away.

For the next few years Rebecca pushed on. In 1998, five years after Carlo's fall, she received a prestigious award for Business Excellence. A photo from the award ceremony shows Carlo and Rebecca smiling.

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I FLEW OFF THE HANDLE AND TOLD MY NIECE AND DAUGHTER THAT WE WERE LEAVING, WITHOUT HIM. I FELT SO HOSTILE TOWARDS HIM, ENRAGED OVER A GUIDE BOOK. MY NIECE, WHO WAS TWELVE, REFUSED TO LEAVE HIM ALONE AND I FELT EMBARRASSED. BUT I COULDN'T SHAKE OFF THE ANGER.

IT WOULD BE MY FAULT

"Things really started to go downhill for me after the award," Rebecca recalls. A smouldering anger simmered within, looking for reasons to explode. She did not associate her dark emotions with illness. "For me, mental illness was schizophrenia or retardation. Depression – that was just another word for having a bad day."

She exploded in shops. Shouted at her staff. When she and Carlo were vacationing in Rome, and Carlo wanted to save money by not buying a guidebook at the Colosseum, she was tempted to abandon her blind husband on the spot. "I flew off the handle and told my niece and daughter that we were leaving without him. I felt so hostile towards him, enraged over a guidebook. My niece, who was twelve, refused to leave him by himself, and I felt embarrassed. But I couldn't shake off the anger."

Carlo wanted to save on the guidebook because the company had lost a perilously large amount of money on a customer's bankruptcy. Rebecca was tempted to throw in the towel, but Carlo would not hear of it. The company was their only source of income, and she had to find new customers. "Carlo told me: Go out and sell! It would be my fault if the business failed." But she could not muster the strength to set up calls with new clients, and could barely even remember appointments with existing ones. In her office, behind closed doors, Rebecca heaped reproach on herself; at home, the conflicts with Carlo boiled on.

All the while the company's orders were dwindling. One of Rebecca's competitors offered to take over the ailing company, and the deal went through in 1999. The sale brought the family a measure of economic respite, but the breathing space was short-lived.

An argument about money once got so out of hand that Carlo began to lash out wildly, roaring "Let me die, let me die!" Gabriella, then twelve, was beside herself with fear that he would kill them. Rebecca shared her daughter's anxiety and started to call 911; she then reconsidered and asked her brother-in-law for help instead. She left her husband in the summer of 2000.

I ALREADY FELT DEAD

Carlo's family was outraged. They pulled away from Rebecca, who had no one else to turn to. All contact with the outside world seemed to hurt. "I felt a huge guilt for not being able to cope with my husband's inability to look after himself. A failure as a mom, as a businessperson, as a wife and as a human being. I didn't belong anywhere." Nonetheless, she managed to land a job with a media-publishing house where she was able to give the impression that everything was all right.





Carlo died the following year from another heart attack. His parents refused to speak to Rebecca, holding her responsible for their son's death. She was not even sure herself, and was defenceless against her in-laws' behaviour at Carlo's funeral. "The family stood in line for the reception, but I stood at the end. Everyone hugged and kissed, and no one hugged me."

One morning she could not gather the strength to get out of bed. "The business and family life had given me an identity, and it was all ripped away. It was as if I had never existed. I just saw one very small empty world and no end to the vacuum. Every day felt like a year, time was so slow and it tortured me so."

A psychiatrist diagnosed her with major depression, and this time Rebecca accepted the diagnosis. But she fought against being hospitalized. What if Carlo's family took advantage of the situation and took Gabriella away from her? Arrangements were made for her to receive outpatient treatment at the local hospital's psychiatric ward, but she had to wait three months to get in.

Rebecca now understands her condition and can describe it. "I slept much of the time during the wait. When the sun was shining on my skin, I couldn't enjoy the warmth. I didn't notice the smell of freshly cut grass." Her senses were shutting down. "Anyone who doesn't know what depression is seems to think it is simply sadness, extreme sadness. It really wasn't that for me at all. I already felt dead. That was one of the reasons I wanted to die." Her ability to perceive traffic lights and stop signs was oddly affected. "I drove through red lights and stop signs several times. I never told anyone."

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ANYONE WHO DOESN'T KNOW WHAT DEPRESSION IS SEEMS TO THINK IT IS SIMPLY SADNESS, EXTREME SADNESS. IT REALLY WASN'T FOR ME AT ALL. I ALREADY FELT DEAD. THAT WAS ONE OF THE REASONS I WANTED TO DIE.

A HEALER

Rebecca cried for the first few days of the hospital's outpatient programme. Then she began to embrace the task of learning to change. One of the exercises she received was practicing how to say "no" – for example saying no to feeling unwelcome when she and Gabriella visited Carlo's family. Her daughter was free to visit, but Rebecca allowed herself to stay away.

An idea for a new business venture occurred to her during treatment at the hospital. While there she met many people who suffered from relapses because family and colleagues showed no understanding of the illness. "People are ignorant about depression, and I knew we needed an educational venue," says Rebecca. This was the beginning of *Moods Magazine*, which she began publishing in 2003. The first editions were small, but the magazine

was well received by both patients and psychiatry professionals. The publication has now grown enough to provide a modest livelihood – and more. "The magazine was a healer for me, and still is," she says. Rebecca received another accolade in 2006 when the Canadian Mental Health Association gave her its Award of Achievement in Media for outstanding contribution to public awareness of mental health issues.

The old Rebecca longed both for recognition and to be a stay-at-home-mom with many children. What does the new Rebecca dream about? About being part of the community in an Italian village. "It's a big dream to live in Italy half of the year. In some little town off the Amalfi coast." She talks of her dream so often that Gabriella teases her about it. "But why not?" she smiles. "I could do the magazine from anywhere in the world." ●

LUNDBECKS HISTORY

COMPANY MILESTONES



1915-1929

The first years as a Danish trading company

Hans Lundbeck founded an agency in Copenhagen on 14 August 1915. The company dealt in everything from machinery, biscuits, confectionery, sweeteners, cinema equipment and cameras to photographic paper and aluminium foil, besides renting out vacuum cleaners. During its first years, the business was operated as a trading company, but, from the mid-1920s, pharmaceuticals were added to its range of products. Eduard Goldschmidt was hired in 1924, bringing into the company a number of new agency contracts for drugs: suppositories, painkillers, etc. Cologne and creams were also added to the portfolio.

1930-1944

Expansion in manufacturing and research

In the 1930s, Lundbeck began production and packaging of pharmaceuticals in Denmark. To ensure sufficient manufacturing capacity, the company moved to the Copenhagen suburb of Valby in 1939, where Lundbeck headquarters is situated today.

Hans Lundbeck died in 1943, and Poul Viggo Petersen was employed to build up Lundbeck's pharmaceutical research. Thanks to his efforts, Lundbeck was able to create a niche for itself in psychopharmaceuticals.

1945-1959

The foundation of Lundbeck's expertise

During the years following World War II, Lundbeck intensified its research, laying the foundation stone for the drugs which would later make Lundbeck world famous. In 1954, Mrs Grete Lundbeck, the widow of Lundbeck's founder, established the Lundbeck Foundation for the purpose of ensuring and expanding Lundbeck's business operations, as well as for providing financial support for primarily scientific objectives and the fight against diseases.

1960-1974

Expanding Lundbeck goes international

Lundbeck's success with Truxal® for the treatment of schizophrenia increased the need for additional production capacity. In 1961, Lundbeck purchased a former creamery in Lumsås, Denmark, and soon began production of active compounds. Between 1960 and 1970, the number of employees doubled to 680, of whom approximately 100 were employed abroad. Lundbeck was becoming an international company.



PRODUCT MILESTONES

Epicutan® 1937

Lundbeck launches its first original drug, Epicutan® for the healing of wounds.

Lucosil® 1940

Lucosil® is launched for the treatment of urinary tract infections.

Truxal® 1959

Truxal® is launched for the treatment of schizophrenia.

Cipramil® 1989

Cipramil® is launched for the treatment of depression.

Serdolect® 1996

Serdolect® is launched for the treatment of schizophrenia.

Cipralex® 2002

Cipralex® is launched for the treatment of depression.

Ebixa® 2003

Ebixa® is launched for the treatment of Alzheimer's disease.

Azilect® 2003

Azilect® is launched for the treatment of Parkinson's disease.

Xenazine® 2003

Xenazine® is launched for the treatment of chorea associated with Huntington's disease.

Sabril® 2009

Sabril® is launched for the treatment of epilepsy.

Saphris®/Sycrest® 2011

Saphris®/Sycrest® is launched for the treatment of schizophrenia and manic episodes associated with bipolar disorder.

Onfi™ 2012

Onfi™ is launched for the treatment of Lennox-Gastaut syndrome (epilepsy).

1975-1989

Lundbeck defines CNS as its primary focus
After 60 years of growth and development based on a wide assortment of products, Lundbeck decided at the end of the 1970s to phase out its existing agencies and cosmetics departments. After that, the company would focus on development and commercialization of drugs.

At the close of the 1980s, Lundbeck further intensified its business strategy focus. In future, Lundbeck would dedicate its efforts to development, manufacturing and commercialization of drugs for the treatment of brain disorders.

1990-2004

Expansion propelled by Cipramil® success
Lundbeck expanded rapidly in the 1990s, due to the success of Cipramil® for treatment of depression. Cipramil® was registered in more than 70 countries and grew to account for the major share of Lundbeck's business operations.

To ensure its continued success, Lundbeck intensified its research activities and began in-licensing drugs from other pharmaceutical companies. This enabled Lundbeck to launch new drugs to take over when the patents on other drugs expired.

In 2003, Lundbeck acquired the US-based research company Synaptic, thereby establishing a research unit as a bridgehead in the US.

2005-

Global presence

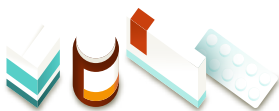
In 2009, Lundbeck acquired Ovation Pharmaceuticals, Inc., establishing Lundbeck's own platform in the US, the world's largest market for pharmaceuticals. Lundbeck also acquired Elaiapharm in France, thereby increasing the company's production capacity.

In 2011, Lundbeck launched Saphris®/Sycrest® for the treatment of schizophrenia and bipolar disorder. Further, we established a new research centre in China and made a historic agreement with Japanese Otsuka Pharmaceutical Co., Ltd. to deliver innovative medicines targeting psychiatric disorders.

At the end of 2011, Lundbeck had more than 6,000 employees in 57 countries.

LUNDBECK AT A GLANCE

We are a specialized pharmaceutical company engaged in developing new and innovative treatments for brain disorders on the basis of in-house research and external partnerships.



16,007

REVENUE

Our 2011 revenue reached DKK 16,007 million.

6,000

EMPLOYEES

We are approximately 6,000 employees¹

1) Number of employees, including part-time employees at the end of 2011

57

GLOBAL PRESENCE

We are a global company with presence in 57 countries and with competencies and activities throughout the value chain: research, development, production, marketing and sales.

20.7%

RESEARCH AND DEVELOPMENT

In 2011, 20.7% of our revenue was reinvested in research and development of new and innovative pharmaceuticals for the treatment of brain disorders.

70%

LUNDBECK FOUNDATION

The largest shareholder is the Lundbeck Foundation, which holds approximately 70% of the shares. In 2011, the Foundation donated DKK 504 million for scientific research.

1915

HISTORY

Lundbeck was founded by Hans Lundbeck almost 100 years ago in 1915. The company was listed on NASDAQ OMX Copenhagen in 1999.

PRODUCTS AND DISEASE AREAS

AZILECT® Parkinson's disease	CIPRALEX® LEXAPRO® Depression and anxiety	EBIXA® Alzheimer's disease	ONFI™ Lennox-Gastaut Syndrome	SABRIL® Epilepsy	SAPHRIS® SYCREST® Schizophrenia and bipolar disorders	XENAZINE® Huntington's disease
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OUR FOCUS

VISION

Our vision is to become
a world leader in
psychiatry and neurology.

MISSION

Our mission is to improve
the quality of life of people
suffering from psychiatric
and neurological disorders.

VALUES

IMAGINATIVE – Dare to be different
PASSIONATE – Never give up
RESPONSIBLE – Do the right thing

LUNDBECK WORLDWIDE

PARENT COMPANY

Denmark

PRODUCTION

Denmark
France
Italy

RESEARCH

China
Denmark
USA

SALES

Europe

Austria
Belgium
Bulgaria
Croatia
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece

Hungary

Iceland

Ireland

Italy

Latvia

Lithuania

Netherlands

Norway

Poland

Portugal

Romania

Serbia

Slovakia

Slovenia

Spain

Sweden

Switzerland

UK

Int. markets

Argentina

Australia

Brazil

Canada

Central America

Chile

China

Colombia

Egypt

Hong Kong

India

Indonesia

Israel

Japan

Korea

Malaysia

Mexico

Pakistan

Philippines

Russia

Saudi Arabia

Singapore

South Africa

Turkey

Ukraine

United Arab Emirates

Venezuela

USA

INSTITUTES

The Lundbeck Institute

THE LUNDBECK INSTITUTE

The Lundbeck Institute is an international education forum whose mission is to improve the quality of life for people affected by psychiatric and neurological diseases. The Institute has an associate faculty of 80 highly respected psychiatrists and neurologists from around the world. Since it was founded in 1997, more than 4,300 specialists from 65 countries have participated in Lundbeck Institute seminars in Denmark. In addition, seminars are currently offered locally in countries worldwide.

RESEARCH AND DEVELOPMENT

Lundbeck is engaged in research and development of new and innovative pharmaceuticals for the treatment of:

- Alcohol dependence
- Alzheimer's disease
- Depression/anxiety
- Epilepsy
- Parkinson's disease
- Psychosis
- Stroke



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